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Proceedings of the 4th Meeting of CSAS and RAP Coordinators

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ABSTRACT

Regional Advisory Process (RAP) coordinators and Canadian Stock Assessment Secretariat (CSAS) officers met in Ottawa on December 7-8, 1999 to discuss science peer review and advisory issues for the coming year.

Action items from the previous meeting were reviewed. Each coordinator presented a summary of regional activities and issues. Several national topics were addressed including interactions with other Sectors, Branches and Councils as well as the status of national Committees. Special guests had been invited to make presentations and to contribute to the discussions. Communication and service delivery within CSAS and the regional advisory processes was also discussed.

RÉSUMÉ

Les coordonnateurs des processus consultatifs régionaux ainsi que les agents du Secrétariat canadien pour l'évaluation des stocks (SCÉS) se sont réunis à Ottawa les 7 et 8 décembre 1999 afin de discuter du processus d'examen par les pairs et des questions liées à la consultation prévues pour la prochaine année.

La liste des actions provenant de la réunion précédente a été passée en revue. Chacun des coordonnateurs a présenté un résumé des activités et questions régionales. Divers sujets d'ordre national ont été abordés incluant l'interaction avec d'autres Secteurs, Directions et Conseils, ainsi que l'état des comités nationaux. Des invités spéciaux ont fait des présentations et participé aux discussions. Les thèmes de la communication et du service au sein du SCÉS et des processus régionaux ont de plus été discutés.

INTRODUCTION

Regional RAP coordinators and CSAS officers met in Ottawa at DFO Headquarters on December 7-8, 1999. Following from recommendations of the 1998 meeting, participants were also invited from Fisheries Management Branch, Oceans Branch, and the Fisheries Resource Conservation Council (FRCC). These individuals were invited for the entire meeting, although most only attended for agenda ideas dealing directly with their sectors or organizations. The Assistant Deputy Minister (ADM) – Science also attended a portion of the meeting. The full attendance list is attached as Annex 1, and the agenda, distributed before the meeting, is attached as Annex 2. The agenda was adopted as distributed, but it was acknowledged that flexibility would be shown to accommodate the availability of invited representatives from other Branches.

ACTION ITEMS FROM PREVIOUS MEETINGS

1. CSAS and Committee Chairs [NMM, FOC and SSSC] will review draft terms of reference and update them if necessary. **(1996)**
   Action: Committee Chairs and CSAS
   Status: New Atlantic Science Directors Committee (ASDC) is discussing the reporting relationship of all these Committees, and will be reviewing their Terms of Reference in January
   Discussion: The coordinators welcome the interest of Atlantic Science Directors, but some expressed concern that in general it might be more appropriate for the Committees to continue to report through the peer review and advisory process. It was agreed that there should be dialogue between CSAS and ASDC on the matter.

2. CSAS will select a few sample Stock Status Reports (SSR) and editorial comments, and circulate these to Regional RAP coordinators, who may add additional comments. The Regional coordinators are to provide full editorial feedback to staff on a sample of these SSRs illustrating how they can be improved. **(1997)**
   Action: J. Rice and Regional Coordinators
   Status: Stalled - Low priority due to internal evolution
   Discussion: The group agreed that subsequent improvements to regional editorial processes have resolved the major issues here. This item can be dropped from the Action Item list.

3. CSAS is to organize a method to conduct an annual review of the quality of SSRs, including a postmortem on the quality of SSRs produced to date. **(1997)**
   Action: CSAS
   Status: Stalled - Low priority due to internal evolution
   Discussion: Same as per 2.

4. CSAS will make the most useful format a part of the consultation with clients on the quality and clarity of SSRs. The deadline of the full review is the end of this calendar year. RAP Coordinators to forward names of the Communications staff for consultation. **(1997)**
   Action: Regional Coordinators
   Status: Maritimes: awaiting CSAS guidance
   Discussion: SSR format now largely resolved, with substantial interaction with clients and Communications Branches, although most interactions have been informal.

5. CSAS will prepare a Guide to chairs on what should be in the proceedings series. **(1997)**
   Action: CSAS
   Status: No action from CSAS [Maritimes Region has produced its own guide.]
   Discussion: The Maritime Region Guidelines to be distributed to all Regions. Regions can provide comment on generality of those Guidelines to the Assistant CSAS Coordinator.

6. This group [RAP coordinators & CSAS] will report annually to the National Science Directors Committee (NSDC), and provide feedback to it on what has been achieved by RAP, as well as what is needed to be done. **(1997)**
   Action: J. Rice to talk with the Director Fisheries Research Branch. **(1998)**
   Status: NSDC has never put CSAS on its agenda
   Discussion: Coordinators continue to agree that annual verbal reports of RAP/CSAS activities to NSDC would be a good idea. The group will raise this with ADM when he joins meeting.

From the November 1998 meeting discussions:

7. Regional Directors to approve Terms of Reference for Regional processes. CSAS Terms of Reference need also to be approved.
   Action: CSAS Coordinator to ask Reg. Directors and ADM Science for approval
   Status: Deck presented to Dept. Policy Committee in May 1999. Approval deferred pending second deck for Dept. Management Committee
   Discussion: Has been done in Maritimes. RAP description widely available on RAP Intranet site. RMEC has also approved Terms of Reference for PSARC. Regional Coordinators will continue to try to get written Terms of Reference developed and adopted for each RAP.

8. Explore options regarding national photo-library i.e. expansion of Maritimes library to include other regions' images.
   Action: CSAS Assistant-Coordinator
   Status:
   - Contacted Art Cosgrove and Heinz Weile (BIO Technographics Unit) who agreed to share the BIO photograph collection. However, the BIO collection is currently being catalogued and has not been digitized yet (most images are **not** available in electronic form);
   - Developed the library structure and content with the help of a CO-OP student. Posted the photo library on the DFO Science Intranet site, in the TOOLS section.

   Discussion: Currently, the DFO Science Intranet site hosts the national Science photograph collection as developed by CSAS. From now on, any regional collections or contributions can easily be linked or added to the site and therefore, can be made available to all DFO staff.

9. Pacific Region situation regarding SSRs: where the process is somewhat different than in all other regions.
   Action: CSAS Coordinator to discuss with RMEC
   Status: Approval process for Pacific SSRs seems to have been resolved
   Discussion: Issue closed.

10. FRCC should provide Regional coordinators with feedback on SSRs and process.
    Action: J. Rice to write letter to FRCC
    Status: Meeting with F. Woodman, chair of FRCC [Maritimes: FRCC members are routine attendees of RAP meetings and provide ongoing feedback]
    Discussion: FRCC attendance at this meeting will give opportunity to raise issue directly.

11. Need to have authors respect deadlines and publish Research Documents in a timely manner.
    Action: Regions to notify CSAS of regional deadlines for Res. Docs after RAP. List of Res. Docs to be sent to CSAS after each meeting. Dir. Gen. Fisheries & Oceans Science (FOS) will be informed by CSAS of who is delinquent and will discuss matter with Regional Directors of Science (RDS)
    Status: CSAS has notified authors, Fisheries Research Branch (FRB) director, Dir. General FOS and ADM Science. As of Dec. 6, 1999, there are still 12 research documents of the **1998 series** that have not been submitted to CSAS
    Discussion: A consequence of RAP Coordinators and CSAS having no line authority. CSAS will continue to keep calling delinquent authors to attention of RDS's and ADM. The ADM has indicated he will treat delinquent Res. Docs. As an important matter, and pursue with RDS's directly. Otherwise there is little additional which can be done. Did agree to close the list on 1998 Res. Doc.

12. There is a need for resources for National Committees: SSSC, NMMC and FOC.
    Action: J. Rice to discuss with A/ADM Science
    Status: Discussed with ADM. There will continue to be no fixed budget. Requests for funding will be processed on a case by case basis
    Discussion: None.

13. Precautionary approach. The A/ADM-Science has made a commitment to talk to the ADM-Fisheries Management, to mandate a person or a committee to proceed with inter-sector initiatives. The group noted special problems with trans-boundary stocks - what happens if US and Canada or NAFO and Canada frameworks are not equally conservative?
    Action: J. Rice to raise this question with A/ADM Science
    Status: Discussed with ADM Science. Issue to be raised with ADM Fisheries Management. Part of Roles and Responsibilities deck
    Discussion: There is general agreement that the greatest need is to get objectives set for stocks. Some Regions reported that they are proceeding on their own on this topic. It was agreed that this would be a major discussion item with Fisheries Management and FRCC members were present.

14. The group noted the increasing demand for science participation in FRCC discussions was breaking our timetables and budgets.
    Action: CSAS coordinator to take this concern to the A/ADM
    Status: Discussed with ADM Science. Promised to raise issue with FRCC
    Discussion: Issue to be raised with FRCC when they attend.

15. All Regional coordinators are to remind staff of the change in Atlantic groundfish schedule.
    Action: Regional Coordinators
    Status: Maritimes: RAP coordinator worked closely with scientists and managers. Facilitated through Multi-sector RAP Coordination Committee
    Discussion: Issue to be raised with Fisheries Management and FRCC when they attend. Note that science is getting squeezed in the middle, as fishing year start dates are now fixed, and many deadlines work backwards from that fixed point.

16. The CSAS Coordinator reported that in response to inquiries to the DFO Universal Classification System (UCS) coordinator, it was confirmed that there are no precedents for process coordinators. The Regional and National Coordinators agreed to exchange drafts as we progress with them.
    Action: Regional Coordinators and CSAS Coordinator
    Status: Drafts exchanged. Process stalled
    Discussion: None.

17. The Coordinator of Maritimes Region will e-mail other coordinators and CSAS on actions taken on forage species issues.
    Action: B. O'Boyle
    Status: This was not a RAP driven initiative in the Maritimes region. Workshop extended to cover ecosystem approaches (Truro, 31 Aug.-2 Sep. 1999). Info provided to CSAS
    Discussion: Following 18.

18. The CSAS Coordinator will discuss the status of national approaches on forage species issues with the Director of FRB and seek clarification if there is to be a nationally coordinated initiative.
    Action: J. Rice
    Status: National Working Group (WG) on Fisheries on Forage Species in place - Rice and Rashotte
    Discussion: As soon as the WG has a draft document, the RAP offices should be notified along with RDS's.

19. SSSC - The coordinators agreed to canvass staff for issues and try to put together a list of possible agenda items.
    Action: Regional Coordinators
    Status: Moribund
    Discussion: See #1.

20. FRCC and PFRCC: the Coordinators felt strongly that there is a need for official feedback from them regarding their degree of satisfaction with the products produced by RAP and ZAPs.
    Action: CSAS
    Status: CSAS Coordinator discussed with FRCC Chair. There is feedback to Dir. General
    Discussion: If DG remains point of contact for feedback from FRCC, there needs to be a mechanism to get feedback from DG to Regions. Issue to be raised directly with FRCC when they come to this meeting.

21. The coordinators agreed to invite FRCC/PFRCC to take an hour at our next meeting to discuss their interests. With further discussion, it was agreed that should be a general practice, that as we rotate our meetings geographically, we invite corresponding regional Advisory Council to talk to us about their objectives and expectations from the peer review processes.
    Action: CSAS
    Status: Although the FRCC is also having its meeting 7-8 Dec. 1999, FRCC Chair indicated that representatives would attend the Coordinators meeting
    Discussion: None.

22. The RAP coordinators saw themselves as forming an important linkage between high priority project work across several regions and implementation in subsequent assessments. The group identified two critical needs both of which could be addressed effectively within RAP processes:
    - Need to review implications of results of High Priority Projects (HPP) for assessments late in project, with HPP and assessment staff;
    - Need for a structure to ensure consistent implementation afterwards across regions. In general, zonal assessments in the next cycle after final meeting of a HPP would yield many benefits with regards to implementation.

    Action: Regional Coordinators
    Status: Maritimes: awaiting CSAS guidance
    Discussion: The NSDC discussed this at their last meeting. They agreed there is a need to review projects and objectives and have a mechanism for identifying successes and failures. We should go forward to NSDC again, calling attention to our opinion that RAP/CSAS is well placed to conduct many of those reviews.

23. The coordinators agreed that the CSAS Assistant Coordinator would:
    - provide draft Guidelines for Publications to all Regional coordinators;
    - put a copy of the Guidelines on the Intranet for general access by DFO assessment staff.

    Action: Assistant Coordinator
    Status: The 1999 CSAS Publication Guidelines and document templates have been posted on the Science Intranet site under REFERENCES / GUIDELINES in both official languages. E-mail message sent to regional coordinators requesting that they inform science staff in their region
    Discussion: Agreement the job was well done.

24. SSRs: All coordinators are to discuss with clients if they feel we need to have the same product for all clients and what product would best meet their needs. Within these discussions the choices are – Combined Overview - Annex - Stand-alone Supplement.
    Action: Regional Coordinators
    Status: Maritimes: stand alone update adopted upon discussion with FRCC
    Discussion: The ADM is not happy with different Regions doing this in different ways, and reports that FRCC also has expressed dislike for the different approaches. He has not directed that

Regions change their independent practices, however. Further direction on this matter may have to wait at least until the two Decks are addressed by Dept. Manag. Committee and Dept. Policy Ctee.

25. The CSAS Secretariat will ask the FRCC to comment these options i.e. what product would best meet their needs. Within these discussions the choices are – Combined Overview - Annex - Stand-alone Supplement.
Action: CSAS
Status: Different regional needs
Discussion: see #24.

26. Regional coordinators agreed to poll staff to determine how many people could provide the full document Research Documents in electronic format.
Action: Regional Coordinators
Status: Maritimes: staff polled, limited feedback received. Will be tried again
Discussion: Pacific Region has implemented this fully, and is doing an excellent job. Other Regions have much further to go, but might borrow from the Pacific Region approach.

27. The CSAS office will update the SSR templates.
Action: J. Hamel
Status: Templates have been updated and posted on the Science Intranet site
Discussion: None

28. RAP Schedules are to be added to the web site.
Action: J. Hamel
Status: A new section called " Upcoming Events" has been added to the CSAS Internet site featuring a list of regional, zonal and national stock assessment/peer review meetings
Discussion: Several noted this has been a very useful and popular part of the Web site.

29. It was agreed that the CSAS Coordinator would discuss with the A/ADM - Science the acceptability of allowing RAP to stand for the Regional Advisory Process.
Action: J. Rice
Status: There is no problem with having RAP stand for Regional Advisory Process
Discussion: The nuance of using "advice" with another body (e.g. FRCC or Management Boards) actually provides the advice was discussed. Nothing was resolved overall, but it remains the case that Regions can use "advisory" rather than "assessment" if it fits their situation best.

REGIONAL ACTIVITIES

PACIFIC

Max Stocker submitted a written report summarizing PSARC activities over 1999. It is included as Annex 3.

In discussion, questions were posed about interactions between PFRCC and PSARC. Some concern was expressed that PFRCC also has produced an overview of salmon stock status as well salmon habitats, and the relative roles of peer reviewed conclusions on salmon stock status vs PFRCC statements on status of salmon stocks were unclear. It was noted that PFRCC members have attended PSARC Salmon and Habitat subcommittees, so PFRCC should have a reasonable understanding of what PSARC concluded and why. However, there is no process for assuring that PFRCC will accept PSARC evaluations of stock status, and no provision for resolving any problems that might arise if reports from the two bodies came to different conclusions. It was also noted that the PFRCC has invested in lots of electronic publishing and promotional material for their process, and the publicity that their reports receive is greater than the attention given to PSARC reports.

There was general agreement that the relationship between PSARC and PFRCC needs to made clearer and possibly more formal, but uncertainty about the best mechanism to pursue in achieving that. It was agreed that the topic should be raised when the ADM joins our discussions.

Other RAP coordinators asked about the relationship between PSARC Advisory Documents, and the Stock Status Reports (SSR), Research Documents and Proceedings series produced in the other Regions. The history of the documents produced in the Pacific Region was reviewed briefly. It was acknowledged that in the long run SSRs, Research Documents and Proceedings may be sufficient documentation of activities in peer review and advisory meetings of all Regions, but under present circumstances, the PSARC Advisory Documents are well received by Regional senior management, and serve a useful function communicating between PSARC and RMEC. It was also noted that the Auditor General had complimented PSARC for bringing stakeholders into its meetings.

LAURENTIAN

Dominque Gascon reported that at this time there are lots of organization uncertainties in the Laurentian Region, and these are affecting the RAP office there. The Assessment Coordinator position is very seasonal and part-time. There are only two RAP meetings per year, in January and February, for all regional stocks; including assorted invertebrate stocks and groundfish.

To date RAP meetings have NOT had industry attendance, but have included invited experts and biologists hired by the companies. There is some strong resistance within the Region to having an industry presence at RAP meetings. Concerns include both the potential for conflict of interest by industry and what is and is not science. This resistance strengthened when the new ADM visited the Region and gave an overview talk on challenges facing DFO. His comments on the need for assessment process to be a science-based process have been interpreted as justification to keep the meetings closed to non-scientists.

Discussion focused on the issue of participation. It was suggested that the arguments in the SAGE document be used as rationale for including some industry presence. It was also noted that as a department and as RAP Coordinators, we need to give more formal attention to how to conduct quality control of Traditional Ecological Knowledge (TEK).

MARITIMES AND GULF

On behalf of the RAP office, Mike Chadwick submitted a written summary of RAP activities in the Gulf and Maritimes Region, which is attached as Annex 4. The two Regions agreed to keep a single RAP office and process, although the Gulf and Maritimes have been divided again.

Several modifications have been made to the SSR format, notably the tabulated list of status indicators near the front of the document. The Region would like feedback from other regions on this addition.

The report also brought up several national issues, in particular:

- There is a need zonal or national attention to METHODOLOGY for assessments of herring, snow crab and some other stocks;
- Some attention needs to be given to using RAP for habitat reviews. Rockweed, wild & farmed salmon, acid rain, and an ecosystem RAP for eastern Scotian Shelf have all been led by Science, although the Departmental lead for many of these issues is actually in Oceans.

It was reported that the Science lead is a response to public pressure for science-led review of these topics, and the evolution of meeting protocol for these topics has varied somewhat from RAPs on stock status. Maritime Region already does a number of joint assessments with the US, and many of these habitat issues are also trans-boundary. This gives another incentive to addressing process issues with regard to reviews of habitat & ecosystem issues quickly.

The Region asked that the RAP coordinators meeting discuss the role of RAP in review of COSEWIC proposals, and the possibility of a joint Snow Crab Assessment meeting.

In discussion another Regional coordinator expressed concern that Maritimes Region has, for example, a Regional Plankton Trends group, when these issues are not Regional ones so the group should be zonal.

This led do a discussion of the need to delineate what is advice, what is peer review, and what is monitoring. This will be revisited when we discuss the relationship between the FOC & Zonal Monitoring Committees. There was also a substantial discussion of who does, and who should, prepare the Remits for meetings. It was agreed that this will be picked up when the deck prepared for the Departmental Policy Committee is reviewed later in the meeting.

Concern was expressed by some of the other coordinators about the number of RAP meetings in the Maritime. Chadwick noted that this is a reflection of management support for the RAP process, and desire to use RAP to address many issues. It was acknowledged that the large number of meeting could create problems for staff to meet all the deadlines. Coordinators in other Regions noted different levels of management support for the preparation and use of RAP across the country.

CENTRAL AND ARCTIC

Larry Dueck reported that the following RAP meetings have been held in Central and Arctic in 1999:

Hudson Bay/Foxe Basin Bowhead	E5-52 (1999),	June 17-18, 1999, Iqaluit, Nunavut
Hornaday River Arctic Charr	D5-68 (1999),	June 3-4, 1999, Inuvik, NT

He is quite new to the responsibilities of RAP Coordinator. He reported that both the products and the process of RAP have been well received by co-management boards to date. There have been no major contentious issues.

There was some debate and confusion about what RAP stands for among some staff and clients ("Regional Advisory Process" versus Resource Assessment Process"). One client felt that the word "Advisory" implied a management advice component that was beyond the mandate of the RAP. Other regions concurred that similar misinterpretations have occurred in their region and that it perhaps does not describe the intent of the RAP appropriately.

At this point a major Regional concern regarding RAP was simply a technical one. The anchoring of formatting details, figures and tables, etc. in the SSRs seems to be very unstable, with many important formatting features often lost or corrupted when files are exchanged or e-mailed. Other Regions concurred that these formatting problems were a serious irritant. Maritimes Region reported that they had overcome most of the problems, but it required substantial time creating macros and special templates for SSRs. It was agreed that the CSAS will work with the BIO RAP office to take advantage of their macros and accumulated computer "tricks", and will distribute the tools to all regions **(Action – CSAS).**

The other major Regional concern was that there is a desperate need for resources to support RAP in Central & Arctic, particularly because of the huge travel costs involved for meetings in the Arctic or to bring experts from the Arctic to Winnipeg. Other resources related issues include limited staff in the context of competing and changing workload demands (e.g. many small quota fisheries – e.g. 200 fish – being dealt with using an internal "mini-RAP" system of assessment; emerging fisheries, etc.). The RAPs to date have been conducted without a lot of preliminary work in the preparation of Working Papers, but on the horizon, a lot of background work will be necessary for some future RAPs and it is unclear how this will get done.

NEWFOUNDLAND

Bruce Atkinson reported that RAP is in a state of change in Newfoundland. They are trying to consolidate all the information in one locus. The Region is also using one of the rejuvenation positions to appoint a full-time RAP coordinator for the first time. It was also suggested that there be a list of dates for future meetings made widely available. This prompted a substantial discussion of the actual scheduling of RAPs. Most clients want to know the meeting dates with much more advance timing. The coordinators **agreed** that they would look into trying to establish actual dates of review sessions for at least the coming year, and would discuss how this would be done and publicized later in the meeting. The Region also requested that Coordinators discuss again the handling of Interim Assessments, which are reported quite differently in different Regions.

DISCUSSION OF DECKS

Following the Regional presentations, Jake Rice, CSAS Coordinator, led a brief discussion of the contents of the two decks which had been prepared. The first was for the Departmental Policy Committee, and dealt specifically with the RAP process. It presented multiple options for several aspects of RAP, and requested a Policy Committee decision on the preferred option for the Department to use in all RAPs. Key issues included:

- Extension of RAP beyond reviewing stock assessments;
- Outside participation in RAP;
- Which written products and approval processes for them;
- Setting of Terms of Reference for meetings - are they mandatory, and who should write them.

This deck was presented to the Policy Committee in May, but did not result in any decisions. Rather, a second deck was requested for the Departmental Management Committee, addressing the Roles and Responsibilities of Science, Fisheries Management, Conservation Councils, and industry, with regard to conservation. A key concern in that deck was that conservation is not approached consistently across stocks and regions, and four key contributing factors were noted:

- Management objectives (short-term and long-term) are unclear;
- Processes are not implemented consistently;
- Process does not ensure progress on conservation is monitored and reported systematically;
- Lack of mechanisms to focus attention on major threats to conservation.

Measures to address each of these issues were also included in the deck.

As these were reviewed, it was stressed that these were being submitted for information, and not for editorial (or substantive) revision at this time. Both decks had been circulated to Regions for input when they were being developed, and Regional RAP coordinators had been tasked to coordinate regional input on the first deck, on the RAP process itself.

In discussion, a few factual errors were noted in details of the case histories in the second deck. These were noted and the deck is to be revised to correct them **(Action –JR).** There was an extended discussion of the actual seriousness of problems caused by inter-regional differences in process. The CSAS Coordinator said that he has received a number of complaints either directly or indirectly (referrals down regarding negative comments or complaints to the Minister's Office or the ADM's Office), but some regional spokespersons said the same complaints did not reach them. It was agreed that when the CSAS office heard of complaints about Regional processes, it will make sure the information gets to the corresponding regions, and vice versa **(Action – CSAS and Regions).**

DISCUSSIONS WITH OTHER SECTORS / FRCC / ADM

FRCC

Michel Vermette, Executive Director, and Dan Lane, member, of the Fisheries Resource Conservation Council (FRCC) attended the meeting. In Mr. Vermette's presentation, he noted that the Council has not been very good at providing the rationale for its advice and decisions, and needs to do that better. He notes that one has to recognize origins of the advice from three sources: science advice, industry advice, and informed experience of Council members. The FRCC advice should make cleared how specific decisions and recommendations are rooted in each of the three possible origins.

FRCC has recently decided to abolish the existing five groundfish teams and three standing Committees, and will re-form along three ecosystems: Newfoundland, Gulf of St. Lawrence, and Scotian Shelf & Gulf of Maine. This structure should help with some problems, but could

complicate dealing with cross-regional issues like the Precautionary Approach (PA). On those topics, the council as a whole will have to work together.

When asked what additional things the FRCC would like to get from RAP, their first priority is to address **scheduling**. The FRCC needs an annual schedule from RAP, which allows sufficient time to sandwich all Council activities between the availability of the SSRs and the beginning of each fisheries management year. The beginning of the management year is fixed, so this places some pressures on RAP to move timing of meetings earlier.

Some people had suggested to the FRCC that perhaps they don't need SSRs before consultation starts. This fall some of the consultations were in advance of the SSRs. There is a general feeling of participants in this meeting, however, that the consultations on a stock proceed better when the factual basis of stock status is available through an SSR.

The FRCC was also asked about its views on the need for **consistency of approach** in RAP processes across at least the Atlantic Zone. The FRCC spokesperson noted that had the FRCC not been at the Scotian Shelf groundfish RAP, the meeting would have put target and limit reference points in all the SSRS. The FRCC spokespersons expressed the opinion that such an action would have caused huge confusion if some regions went with targets and limits and others didn't. Such key aspects of fisheries management must be developed in consultation with many bodies. They noted there is already great apprehension in industry regarding the precautionary approach, and for one region to go unilaterally on this would cause many problems. They stressed that everybody needs to be moving ahead at the same speed on implementing the PA, and they didn't care who calls the meetings to discuss implementation, as long as all the appropriate interests attend.

These comments prompted a long discussion regarding the readiness of DFO as a whole to implement the **Precautionary Approach**, and of Science Branch to at least take the step it can on its own. A consensus emerged that there was some uncertainty regarding our readiness, but it was certainly the right time for Science Branch to make the attempt. Science could at least identify biologically-based limit reference points for all stocks which were assessed, and this step along might prompt further action from other Branches, Conservation Council, and other interested individuals and groups.

The discussion clarified that at least two meetings would be necessary for Science Branch to take the next major step that it had to. The first would have to reconcile at least the two PA framework documents which are being developed; one from the PA workshop in Nanaimo and the other being developed in Maritimes. It was agreed that the meeting should occur in late April or early May, assuming that both documents are ready to be distributed internally by the end of January. The goal of this meeting would be to have produce a document which would really spell out what the methodology is for choosing and estimating limit reference points, and how the information would be presented to those receiving information and advice from RAP meetings. The April/May workshop would include individuals from all Regions, and produce not just a framework document but also some worked illustrations. Following that meeting, participants would return to their regions, and over the summer, apply the framework all the stocks which will be assessed in the coming cycle. In early fall there would be a second meeting where all the limit reference points for all stocks from all Regions would be examined, to ensure that results and reference points were consistent and would appear soundly grounded to critics and clients. Following whatever further reconciliation was needed across stocks or species and regions, the slate of limit reference points would be used in the assessments and advice on stocks throughout the fall 2000-spring 2001 cycle.

There was substantial discussion about who should attend these meetings. It was agreed that RAP coordinators would be the logical group to coordinate this initiative regionally, because it deals directly with RAP activities. Multiple Science staff from each region should attend, to ensure that the meeting as a whole has individuals knowledgeable of all species groups and major assessment

approaches. Representative of Fisheries Management Branch and Conservation Councils should also be invited, to ensure effective information flow and understanding among Branches. Industry and other interest groups would not be excluded, but it was understood that these were to be technical meetings, not consultation meetings. Any non-government participants would be invited on the basis of their ability to contribute to reconciling the documents, and the implementing the details of resultant framework. In addition, consultation and information sessions with other Branches and clients would be necessary with each step, but they would probably best be done on a regional basis, building on the different existing situations in the Regions. It was agreed that the Coordinator of CSAS would write up the proposal arising from this discussion, and review by the RAP coordinators, prior to submitting the proposed initiative to the ADM – Science for action **(Action – Rice)**

With regard to the **demand for Science support at FRCC consultations,** there was a general feeling that if we can promulgate the assessment results ourselves then FRCC won't have to have science presentation in their meetings. The existing consultation process was set out in 93/94 when groundfish advice was provided in June, for an FRCC report in October, for Fisheries Management Plans released in December. All of these processes have evolved substantially greatly in five years, and there is a need to smooth out many rough edges about Science's present role in FRCC consultations. The FRCC should review what it really needs from Science during its public consultations, and Regional Science Branches should review other avenues for promulgating the results of its assessments. **(Action – Regional Coordinators to talk to staff and Communications. CSAS to ask ADM to request that FRCC specify its needs for Science at their consultations)**

FISHERIES MANAGEMENT

Both Tom Fowler and Bob Huson from Fisheries Management, Headquarters, participated in these discussions. Fowler attended the entire meeting, and contributed to many of the discussions.

Fisheries Management reviewed briefly the status the move to Integrated Fisheries Management Plans (IFMP). It was stressed that **timing** is one of the key problems with the IFMPs. Fisheries Management has been trying to minimize the number of plans which come to the Minister or DM for approval, so the 9 & ½ weeks of lead time only applies to relatively few plans; ones which involve new licenses, controversy, or major changes in TAC. IFMP are also often multiyear management plan, particularly with strong co-management components. Altogether, about 30 of 130 plans come to Headquarters for approval.

For those plans, however, the timing of assessments and availability of information is vital, and among the steps to improve the process will be a more rigorous tracking procedure for where we are in the process.

There was some discussion of the timing issue, but in general it was agreed that this was ground which had been covered often. Even for plans not approved in Headquarters there still needs to be a timing process wherever they are approved. It was agreed that all Regions would send their schedules of RAP meeting for at least 2000 (and where possible subsequent years) to the Assistant Coordinator of CSAS by mid-January. These would be collated into a single timetable, which would be returned to the Regions, and distributed widely to Fisheries Management Branch, FRCC and placed on the CSAS Web site **(Action – RAP Coordinators, and CSAS Asst. Coord.)**

In response to the question of what additional material Fisheries Management would like to get from RAP, the discussion centered on Management objectives. It was noted that there should be dialogue among Branches, and with clients, regarding what should be the measurable objectives that should be in the management plans. It was suggested that, where time at RAP allow, there should be at least a general discussion of **Sustainability indicators (performance indicators)** in the 2000 cycle of meetings. **(Action – RAP Coordinators & regional meetings).** Fisheries Management also stated that it would be helpful to get information from RAP on what does the PA

really mean. There was a clear sense that these would be information gathering discussions and regions would not make unilateral decisions on indicators or approaches to the PA. The input would be coordinated through a national process. Discussion also highlighted the need for some specificity of process for the science review of the draft IFMPs, but no particular approach was identified. In this context it was also noted that according to their objectives, IFMPs create additional urgency to providing much more integrated science advice in support of IFMPs, covering many more multispecies, species – environment, and fisheries interactions. This, in turn, requires much more interaction among Science, Fisheries Management, and Oceans in and out of the RAP setting.

ADM – Science

In his opening remarks the ADM stressed that the Deputy Minister is really interested in how we deliver Science. The Department wants to explore more explicitly what the roles of the sectors and non-DFO groups are – where responsibilities start and stop. We should also confront the question "Can we bring a bit more systematic rigour to the process." There is an urgent need to work through the attendance discrepancy among Regions, which could be turned into a serious difficulty by even one mishandled event. A careful balance has to be found to help standardize and sort through process but without second-guessing the regional activities.
Other questions of concern from the ADM's perspective include

- How do we deal with communications products of the meetings – overall driving issue;
- How do we maintain scientific excellence and a good comprehensive peer review process while ensuring the process is open and transparent;
- How does the process help ensure that the Minister has the full array of opinion available on all major issues.

The first item of general discussion was the relationship between PSARC and the PFRCC. The ADM noted that PFRCC was a relatively new and evolving process. Discussion reviewed the potential problems with the current ill-defined relationship with the PFRCC, particularly the possibility of problems of nature of the Winters-FRCC issue with 3Ps cod. The ADM suggested that a summary of these concerns be prepared for him **(Action – Stocker / Rice).** The Chair of the Marine Mammals Committee also warned that we need to be prepared for similar Winters-like events with marine mammals. Some academic departmental critics do receive invitations to those meetings, and may use information from the debates during those peer review meetings in advocacy ways afterwards. Coordinators stressed that the Minster can play a role in reducing the threat of these challenges by making a strong commitment to adhere to the RAP process and its products.

The ADM was also asked how broadly did he see RAP being applied? He thought that RAP will have to move to multi-species and inclusion of habitat and oceans components into our assessments. There was some concern expressed that movement in that direction had been endorsed well back into the 1980s, but progress remains frustratingly slow. Some suggested that the problem was simply getting an allocation of time of the analytically gifted people, more than availability of data or receptivity of RAP to the analyses.

It was suggested that if there was a clearer policy and reference points on stocks like Northern cod, then it would not be as essential to allocate as many resources to annual assessments. It was thought that the probability that the stock was above the reference points possibly could be estimated with less analytical work than is required now, when so many possible questions must be anticipated in each assessment.

There was additional discussion with the ADM of the breadth of questions which go to RAP – Aquaculture, Marine Protected Areas (MPA), etc. All should be discussed. With regard to the inclusiveness / exclusiveness of RAP, the ADM stressed that what goes on in RAP meetings must stay focused on the science. It cannot be a consultation format.

OCEANS

Camille Mageau, Hugh Bain, Ron Pierce, and Pierre Lemieux attended from Oceans Branch. They reviewed a deck outlining the mandate and goals of the Oceans Sector, highlighting the statutory driving forces of the Canadian Environmental Assessment Act (CEAA), Habitat Act, and the Oceans Act, particularly the latter. The Oceans Act does have a commitment to provision of scientific information and advice" in support of conservation & protection of aquatic resources. The question that is unclear is the process for bringing oceans issues forward to RAP. At prompting from the Minister's Office there has been a request for a state-of-knowledge report on aquaculture. However many issues are not going to be handled in that way, although the desire is still much the same, for an evaluation of current state of knowledge and holes in the knowledge area for some topic. There are subsidiary questions as well, such as how to determine the right scale and sequence for RAPs, ZAPs and NAPs? They also noted that Habitat Management at a crossroads – we now have a national program with MC and TB submission, and a requirement to report in two years on how well the Department is doing. In preparation for that review, there is a need to put in place infrastructure for reviewing habitat relative to the requirements of the Fisheries Act, the Oceans Act, and the needs of Conservation and Protection. In concluding the presentation, a number of questions were reiterated, including:

- How to get questions to RAP;
- How to ensure Habitat / Oceans is in the picture;
- How to get the scale of an issue handled correctly;
- What should the department use as Marine Environmental Quality (MEQ) indices – need for advice from Fisheries Oceanography;
- OCEANS sector – how can it be proactive on both land-based as well as marine based issues;
- MEQs can be set by regulation. What process should be used to set the regulatory standards;
- How does the department meet the need to feed information from research back into the management plans.

There was substantial discussion about how to strike a balance in review and provision of advice between being responsive to regional needs, and ensuring issues with zonal or national scope are dealt with the proper scale. With fishery related issues the clients are often very regional, whereas with environmental issues there are national clients who have expressed interest in access to a common forum. Problems may arise when regions differ greatly in their preparedness to deal with such environmental issues.

Although it was agreed that RAP will be of great value in bringing together scientific information on such topics, the issue of scale and uneven timing among Regions was not resolved. It was agreed that some issues may need to be addressed at national, zonal, and regional scales, and other issues only at one or two of the scales.

It was also confirmed that at regional, zonal or national peer review meetings on oceans and habitat issues, considerations like habitat compensation, (as with allocation within Total Allowable Catch - TACs) will not be on the table. Nonetheless because Habitat is trying to get consistency in how they apply decisions across the country, such concerns are an incentive to deal with science questions which may lead to considerations about compensation at the largest scale practical.

It was agreed that there needs to be some general principles or guidelines for what Oceans and Habitat issues do and do not go to RAPs, both the keep from swamping RAP, and to allow Habitat to go about is routine business. The principles or guidelines should include scope of the issue, complexity, and amount of new science or innovative actions. It might be appropriate for the ADMs of Science and Oceans to discuss how they would like to pursue bringing Oceans and Habitat issues to the peer review process. It would be useful if there was some approach developed which would provide written indications that Science and Oceans both acknowledged the same priority to both the review process, and the issues which went to it. **(Action – CSAS Coordinator to discuss with ADM – Science. Suggestion that Oceans participants initiate similar discussions with the ADM of Oceans.)**

Given the large number of Oceans and Habitat issues that could be coming to RAP, several coordinators raised questions about how the RAP offices are resourced. There were concerns that Science Budgets for RAP were developed to enable fisheries assessment issues to be addressed. It was agreed that this concern should also go to the respective ADMs promptly, as part of the overall discussion of the interactions between the Branches on review and advisory issues.

COMMITTEES

FOC

Doug Swain, the Chair of the Fisheries Oceanography Committee (FOC) reviewed the activities of FOC in 1999. The annual meeting did the 1998 review of oceanographic conditions, and sponsored a Theme Session on *"Lower Trophic Levels in Marine Ecosystems of the Northwest Atlantic"*. At the meeting, there was also a thorough discussion of the relationship between the Zonal Monitoring Committee (ZMC) and FOC. It was agreed that the ZMC would prepare overviews and present them to FOC, where they would receive peer review and development of scientific advice, if any, would occur. At the meeting participants identified the topic of "Is there a need to incorporate variability in environmental conditions or productivity into stock assessments of fishes and invertebrates" as a suitable topic for their 2000 Theme Session. The topic was later changed, however, when the DG, FOSD contacted the Chair, and asked the FOC to organize a workshop on the Cod Recruitment Dilemma, to review evidence and provide the scientific information needed to answer a request from the FRCC, contained in their 1999 report. Response to this Workshop has been good so far.

Swain also briefly reviewed the status of the FOC Working Groups on Cod growth and Cod Distribution, and on Environmental Indices.

In discussion regarding interactions of Fisheries Oceanography Committees on both coasts, it was agreed to have the FOC reports sent to Pacific Region for attention to their Fisheries Oceanography Committee, and vice versa. Efforts would be made to try to have someone from the Pacific Committee attend the Atlantic FOC meeting as well. **(Action – Swain, Stocker)**

With regard to the upcoming workshop, attention was called to the widespread concern about invertebrates and oceanographic factors affecting their productivity. It was asked if the Recruitment Dilemma Workshop would consider this factor. The response noted that workshop would focus primarily on cod, but other species would not be wholly excluded. It was suggested that this could be a theme session for NEXT year. Because the key to having a successful workshop is lots of lead time it would be valuable to designate the topic as soon as possible. It is also necessary to get Science Directors to support it if a workshop is to be successful.

There was discussion about the role for FOC as primarily advisory or science coordination. All agreed the Committee has both purposes. In recent years it had evolved more to set its own agenda, but with the recent increase in direct requests to it for advice, it is now moving back to a more advisory role. Atlantic Science Directors want to give it more support.

The Chair was also asked if FOC was addressing the climate change issue. The recent Workshop in Toronto was noted, but for FOC this is an important issue that has not been addressed yet. At the coming meeting there will be an hour or so for consideration of climate change issues, but that is not adequate to cover many important aspects. If that theme is to be addressed seriously it needs to have much more time at a meeting, and many more resources need to be made available for preparatory work.

NMMRC

The National Marine Mammal Review Committee (NMMRC) had two meetings in 1999; a workshop on seal consumption and the annual Committee meeting. The approach announced by the Department of addressing the seal hunt stated that there would be three steps, but the general integrative workshop has not yet been held.

The Chair noted that all documents prepared by DFO staff for COSEWIC are supposed to be reviewed at NMMRC. However, scientists at the 1999 meeting made many observations about the problems with how COSEWIC presently is conducting its status evaluations, or with overlap between our process and the COSEWIC one. The 1999 meeting also reviewed several papers for NAMMCO. The Committee raised the issue that papers prepared by Canadian scientists should be presented by Canadian scientists, but that has not always been the case in recent years. The Chair also stressed that no SSRs on Atlantic seal populations have been produced from the 1999 meeting, and that there is a problem getting the research document completed after the meeting.

In discussion it was clarified that some of the problem with documentation occurs because not all contributors are DFO employees, and hence may not feel bound to produce final Res. Docs., but authors of some delinquent Res. Docs. are DFO employees. It was agreed that a memo should be sent to staff from all National Science Directors that the Chair of NMMRC is speaking on behalf of the Directors when giving directions for preparing documentation. **(Action – CSAS Coordinator to ask Dir. FRB to raise at NDSC.)**

With regard to coming meetings, the Chair noted that in 2000 there will be new population estimates for harp seals. However, he felt that the Department is not preparing itself otherwise for the upcoming meeting. It is urgent that we start our planning. With regard to timing of the meeting, the new estimates will not be available until end of February at the earliest, and that needs to be a major consideration in the scheduling of the meeting. **(Action – CSAS Coordinator to raise urgency of planning Marine Mammal meeting with Dir. FRB, and request support in accelerating planning for the 2000 meeting).** There was agreement that with all the public debate on seals it would be desirable to have an up-to-date SSR on these stocks. The failure to find a chair for the WG was also highlighted as a major concern by the coordinators.

OTHER WORKSHOPS AND MEETINGS

SENTINEL SURVEYS

A question was raised about the workshop which had been proposed at the March 1999 cod ZAP to review all the collaborative industry – DFO groundfish surveys. The CSAS Coordinator reported that the request had been received positively after the ZAP, but no authorization had come forward to actually proceed with the meeting. After discussion the Coordinators agreed that they endorse having this workshop. CSAS should organize the workshop, because it is national in scope. Funding support for many of the industry participants would be required, because their attendance would be essential to achieving the meeting objectives as specified in the recommendation from the ZAP. It was agreed that the preferred time for the workshop would be May 2000, as a compromise between allowing enough preparation time and having the results available for implementation. Montreal would be an appropriate venue, in terms of travel logistics.

Action: The CSAS Coordinator will go to ADM for funding; the Regional coordinators will check with their respective Regions and let CSAS know the numbers of people for whom travel support would be needed.

It was also noted that although comprehensive Sentinel Survey reports have been prepared annually in the past, these are not available routinely on the net. After discussion, it was agreed that it would not be appropriate to include these reports on the CSAS Web site, or comparable

Regional sites. Many of these reports are not produced by DFO, and should not be presented in ways which readers might interpret as being Departmental documents.

SNOW CRAB ASSESSMENT

Questions were raised about the status of a ZAP on snow crab, which had been recommended at previous Coordinators Meetings. Several individuals argued that there was never a need for a common assessment meeting, only a need for looking at methodology. Others thought that management strategies as well as assessment methods needed to be reviewed zonally. Specific management questions included:

- Does the current (or any) approach ensure sufficient numbers of males if the population is experiencing a variable sex ratio over time?
- Is the 95mm size limit adequate to ensure conservation alone?
- If no, what exploitation rate can be sustained by the rest of the population?

There are also other management strategy issues which could be addressed.

It was agreed that this meeting would recommend a technical workshop in November 2000. The meeting would also review management measures, including biological reference points, and evaluate which ones work well. It would apply the preferred technical approach(es) to the most recent assessment, and consider specifically to what extent advice would have changed if the analytical methods and management approaches had been used in the 1999 assessments and advice. It was suggested that Dr. Scott Campbell could be potential science lead for this. **(Action: CSAS and John Moores to carry request for Workshop to Director FBR and ADM – Science. Newfoundland coordinator to discuss availability of Dr. Campbell with Science Director – Newfoundland Region).**

INTERACTION WITH NSDC AND ASDC

The coordinators still consider this to be an important issue. The Director FRB thought that it will happen this year. The Atlantic Science Directors Committee (ASDC) meeting in 25th and 26th January, 2000, was considered a good opportunity to discuss the issues of FOC & SSSS, meeting scheduling, completion of documents in timely fashion, and interactions with Oceans sector.

COSEWIC

The Canadian member to Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (and Director, FRB) gave a brief summary of how COSEWIC conducts its evaluations of risk level for species, and of recent activities pertinent to COSEWIC, Species at Risk Act (SARA), etc. In the subsequent discussion, many issues and concerns were raised.

The role of RAP would be atypical, because RAP would be being asked for a corporate opinion on a proposal from outside DFO, and the Department is often reluctant to become immersed in such public judgements. When reviewing Status Proposals to COSEWIC, concerns were expressed about whether COSEWIC status proposals should receive the same review of any other issue going to a RAP. Would the interests of conservation and the Department be served better if RAP gave each major issue a thorough, internal scientific review, or if the DFO input was collated and communicated in some other way? There was also concern about how the Department does get accountability throughout the COSEWIC chain.

A number of topics were addressed in a discussion of concern about present practice. Topics included

- Suitability of individual DFO scientist nominating category;
- How the message(s) from RAP go(es) back to individual COSEWIC and the author (especially if some authors are DFO staff themselves);

- How to get corporate opinion to be entered and heard in debates of protection status for marine species.

It was noted that COSEWIC is in the process of undergoing some major upheavals, as preparations are made for SARA. The coordinators agreed that there would be no recommendations for action at this time on COSEWIC – RAP interactions, although they do consider RAP to be the forum in which many COSEWIC-type issues should be addressed. However, as COSEWIC firms up its own plans and timetables, DFO Science staff should keep abreast of these developments, and perhaps revisit this topic at the next meeting.

COMMUNICATION & SERVICE DELIVERY

The assistant Coordinator provided a summary of the publications and communications activities of CSAS. Details are presented in Annex 5 and include statistics on Research Document production and client requests. It was mentioned that, although CSAS still receives requests for Research Document reprints on a regular basis, these requests are mainly for documents published prior to 1999, date when the Research Documents were first made available on-line on the Internet.

New features of the CSAS Internet site were presented namely:
- Access to earlier versions of Stock Status Reports;
- Citations for CSAS documents;
- Upcoming Events.

The Secretariat continues to be concerned about delinquent Research Documents. Inventories are already provided to the ADM and RDS's on a quarterly basis. It was suggested that after 60 days the Secretariat should have an e-mail link from the CSAS Web site to each author and Regional science Director, which would inform them each time the office receives a request for a Research Document and cannot provide it. This is CSAS current practice with respect to any outstanding documents of the 1998 series.

The Publication Guidelines and new templates for year 2000 were presented. They are available to all on the Science Intranet site and CSAS will continue to encourage authors to become familiar with its requirements. A few suggestions were made regarding the SSR content: *Summary* should be a mandatory section, and *Management Considerations* should precede *Other Considerations*. Templates will be updated to reflect these changes.

There was some discussion of the relationship between the numbering system for Working Papers and Research Documents, in the Pacific Region, and the tendency for Pacific Region Advisory (and other) Documents to cite Working Papers. It would be preferable to have the 99/xx in the SSR refer to the Research Document rather than a Regional Working Paper, because the WP is not citable and cannot be located by title some months down the road.

With regard to occasional lags in making SSRs available, the main problem with getting SSRs done readily is that the wrong or an obsolete template is used. Actions recommended above should improve on that problem. There was discussion of the target deadlines for Research Document after RAPs or ZAPs. It was agreed that around 60 days is common practice, and reasonable. The practice of, and deadlines for, advance submission of working papers for RAPs is totally a regional matter. The target turn-around time on SSRs also varies slightly to meet needs of managers or other clients, but is usually less than a week, not including time for translation, if required, once the text is complete in the language in which it was prepared.

There was further discussion of the new Table of Status indicators (Attributes) recently added to Maritime Region SSRs, based on a red-light / yellow light / green light concept. Although there are many issues regarding these indicators which are not the direct mandate of RAP coordinators, it was

agreed that such an approach needs to make clear that all "red" or all "green" should not be afforded the same weight. In discussion, participants recognized the potential utility of this sort of approach. They also noted that the approach had difficulty directing attention to quantitative uncertainties, a section of present SSRs that has grown in importance in recent years. Furthermore, it was observed that where the approach has been used in other jurisdictions, some problems have arisen. A point of special concern was that "yellow lights" appear to have different interpretations in different regions, and possibly in different applications within regions. From a first look, some discussants thought that similar kinds of difficulties appear likely in these tables as well. The approach should be subject to some further discussion and review before RAP or the department proceeds with calling the signals an implementation of the Precautionary Approach. Such discussions could easily by included in the year-long PA initiative discussed earlier in the report.

The meeting adjourned at 16:10 PM on December 8.

Annex 1. Participants List.

Participant	Region / Sector	Attendance
	RAP / CSAS	
ATKINSON, Bruce	Newfoundland / Science	F
CHADWICK, Michael	Maritimes / Science	F
DUECK, Larry	Central & Arctic / Science	F
GASCON, Dominique	Laurentian / Science	F
HAMEL, Joanne	NCR / Science	F
RICE, Jake	NCR / Science	F
STOCKER, Max	Pacific / Science	F
TILLMAN, Joe	Newfoundland / Science	F
	National Committees	
GAGNÉ, Jacques	Laurentian / Science / NMMC	F
SWAIN, Doug	Maritimes / Science / FOC	P
	Other Sectors	
BAIN, Hugh	NCR / Oceans	P
DAVIS, John	NCR / Science	P
FOWLER, Tom	NCR / Fisheries Management	F
HUSON, Bob	NCR / Fisheries Management	P
LANE, Dan	FRCC	P
LEMIEUX, Pierre	NCR / Oceans	P
MAGEAU, Camille	NCR / Oceans	P
PIERCE, Ron	NCR / Oceans	P
POWLES, Howard	NCR / Science	P
RIVARD, Denis	NCR / Science	P
VERMETTE, Michel	FRCC	P

Attendance: F (full), P (partial).

Annex 2. 4th Meeting of CSAS and RAP Coordinators – Proposed Agenda.

Day 1

08h30	**Opening Remarks** [Rice]
08h45	**Review of 1998 Action Items** [Rice, All]
	Regional activities
09h15	Pacific [Stocker]
09h45	Laurentian [Gascon]
10h15	**Break**
10h30	Maritimes [Chadwick]
11h00	Central & Arctic [Dueck]
11h30	Newfoundland [Atkinson]
12h00	**Lunch**
	National issues
13h00	Interaction with FRCC [Vermette, Yeadon, All]
14h00	Integrated Fisheries Management Plan [Fowler, Huson, All]
15h00	Review of the RAP process. [Davis, All]
16h00	End of Day 1

Day 2

	National activities
08h30	CSAS [Rice]
09h15	National Committees: NMMC [Gagné], FOC [Swain - by phone], SSSS
10h00	**Break**
	National issues (cont')
10h15	Interaction between RAP and new Oceans Sector [Mageau, All]
11h30	Sentinel Fisheries [All]
12h00	**Lunch**
13h00	Precautionary Approach in RAP [All]
14h00	Crab Zonal Assessment Meeting [All]
14h30	Interaction with NSDC and ASDC [All]
15h00	**Break**
15h15	**Communication and Service Delivery** [Hamel, All]
16h30	End of Day 2

Annex 3. Pacific Regional Report.

Since the 1998 National RAP Coordinators Committee meeting the Resource Management Executive Committee (RMEC) has approved the PSARC terms of reference (Appendix 1) and the policy governing public participation in PSARC (Appendix 2).

A major change in the operation of PSARC is the replacement of the Steering Committee by a Chairpersons' Committee. The Chairpersons Committee has responsibility for integrating the information produced by the Subcommittees and the Working Group(s). The Committee deals with co-ordination and consistency among Subcommittees and Working Groups, and provides overall direction to Subcommittees and Working Groups.

PSARC recognizes four groups of participants in Subcommittee meetings: 1) Subcommittee members, 2) invited technical experts, 3) external participants, and 4) observers. In 1999 Subcommittee meetings have been open to individuals not employed by the department. Participants included individuals from academia, First Nations, stakeholders, and other government or private institutions. The response of participants has been positive. And no major problems have arisen during the meetings.

The Herring Subcommittee was renamed the Pelagic Subcommittee. The first Advisory Document provided advice on Pacific herring, whereas the second Advisory Document provided advice on Pacific sardines and eulachons.

In 1999 the Habitat Subcommittee became functional. Two meetings were held during which five Working Papers were reviewed. The Fisheries and Oceanography Working Group held two meetings in 1999. A report providing a summary of the condition of the north-east Pacific ocean in 1999 is expected early in 2000.

In 1999 PSARC held 11 Subcommittee meetings. The following is a summary of documents produced for the period 1998-99:

Documents/Year	1998	1999
Working Papers	41	66[1]
Research Documents	25	30
Advisory Documents	6	11
SSRs	15	49

[1]Of the 66 Working Papers, 17 are in the revision period

Up to December 1, 1999 PSARC received 99 external requests for information.

An analysis of the strength and weaknesses of the PSARC process was conducted in 1999. Adoption of the recommendations will contribute to improvements in the science peer review and advisory process in the Pacific Region.

Analysis of the PSARC process

The PSARC process is basically sound:

- Generally, fisheries managers have a high regard for the scientific advice and information produced by PSARC.
- PSARC has a strong institutional basis in the Pacific Region; and
- PSARC has a good communications and service delivery track record.

However, it is clear that some improvements are needed.

The following is a review of the strength and weaknesses of the PSARC process.

Strengths

1. Everything in writing:
   - The Working Papers are generally complete in coverage of data and model structure of assessment models used in the analysis.
   - The reviewers are asked to provide written comments prior to Subcommittee meetings on the author(s)' methodology, interpretations, and recommendations.
   - The Subcommittee maintains a written record of the discussions, documenting the decision on acceptance of the paper in the form of Advisory Documents.
2. The Subcommittee review of Working Papers is conducted in a thorough manner ensuring that explicit scientific standards are met. These reviews highlight any serious problems with data, models, the resource or the issue under consideration.
3. The openness of PSARC contributes to the acceptance of scientific advice and information by stakeholders.

Weaknesses

1. There is no explicit mechanism that ensures that all major stocks are assessed and reviewed. The same is true for other issues for which scientific advice is required. The approach for identifying Working Papers is different for each Subcommittee ranging from formal written requests for Working Papers to having no process at all for identifying reviews.
2. There are a substantial number of fisheries in the Pacific Region that are data poor with no assessments or controls. It is necessary to provide scientific advice for these fisheries under the mandate of stock conservation and the application of the precautionary approach.
3. PSARC Agenda
   - There is a concern that the PSARC agenda is large. Some unsolicited papers are submitted to Subcommittees for review. Unsolicited papers can be awkward to review if they do not provide relevant advice.
   - Generally there is insufficient time for discussion and exchange of ideas, or for resolving technical problems, during meetings.
4. Few Working Papers identify reference points. These are required under a precautionary approach to fisheries management.

To address these weaknesses the following recommendations are offered:

1. To address the lack of a mechanism to identify and prioritize stocks and issues for which management requires advice, a consultation process is recommended. Consultation among PSARC, Science Branch, Fisheries Management, Habitat Management, and the Oceans Sector could identify a list of Working Papers that must be submitted for review by each Subcommittee. Written requests for specific advice should be emerging from these consultations.

2. For all data poor fisheries in the Pacific Region a phased approach should be followed. This approach proposes three phases to obtain the necessary information to manage a fishery, and explicitly endorses the precautionary approach to fisheries management and research. For details on the phased approach please have a look at a recent paper by Ian Perry et al. published this year in Reviews in Fish Biology and Fisheries.

3. To allow more discussion of scientific issues that cannot be resolved at Subcommittee meetings PSARC should organize workshops. Along with the principal investigators, PSARC would invite a number of key experts (internal and external). During the workshop the participants have sufficient time to fully examine an issue and resolve it.

4. To avoid overloading the peer review process with unsolicited papers a screening mechanism should be established to ensure all Working Papers submitted are relevant and prepared to an acceptable standard. The PSARC Chairpersons Committee could take on this responsibility.

5. There is an urgency to define biological reference points for Canada's Pacific coast fisheries. Explicit guidelines for defining biological reference points should be developed as soon as possible. Fisheries management staff must play a significant role in the development of these guidelines.

Appendix 1. Pacific Scientific Advice Review Committee (PSARC) Terms of Reference

EXECUTIVE SUMMARY

The Pacific Scientific Advice Review Committee (PSARC) is the Pacific Regional body responsible for review and evaluation of all scientific information on the status of living aquatic resources, their ecosystems, and on biological aspects of stock management.

PSARC provides internal and external clients with scientific information and advice that is reliable, relevant, timely and comprehensive.

PSARC advises the Resource Management Executive Committee (RMEC) of Fisheries and Oceans Canada and other bodies on stock and habitat status and potential biological consequences of fisheries management actions and natural events.

PSARC issues Stock Status Reports (SSRs) and Habitat Status Reports (HSRs). These reports are public documents that summarize, in lay terms, scientific information and fisheries information on major commercially-harvested species and their aquatic habitats.

PSARC includes a Chairpersons Committee, a Secretariat and five Subcommittees (Groundfish, Pelagic, Invertebrates, Salmon, and Habitat). PSARC Subcommittees serve as the primary Pacific Region forum for peer review and evaluation of scientific research and literature as well as traditional ecological knowledge.

PSARC Subcommittees provide the scientific basis for advice on salmon, herring, invertebrate and groundfish stocks in the Pacific Region harvested currently, or with potential to be harvested, and on fish habitats and fisheries ecosystems.

Steps in the Review Process

1. Consult among PSARC, Science Branch, Fisheries Management, Habitat Management, and the Oceans Sector to identify reviews to be conducted for the year.

2. Hold meetings to review data with clients prior to beginning analyses. Client groups, both internal and external, should have confidence that all information relevant to the stocks or issue being assessed is considered.

3. Prepare Working Papers and draft Status Reports before PSARC Subcommittee meetings. Working Papers should be comprehensive, analytically rigorous, and explicitly address uncertainty.

4. Obtain written reviews of Working Papers before Subcommittee meetings by internal and/or external professionals in the field.

5. Review Working Papers and draft Status Reports by PSARC Subcommittees to ensure they are technically sound and meet explicit standards for content and form. The review should resolve unclear points of data or analyses and consider ancillary information or analyses from clients if available. Working Papers by DFO and non-DFO authors receive the same standard of review.

6. Develop best possible scientific assessment of stock status or state of knowledge on science issues at Subcommittee meetings. Where consensus is not achieved, the merits and shortcomings of alternative interpretations of the data are specified in Advisory Documents.

7. Present Advisory Documents and Status Reports containing scientific information on resource status and recommended conservation measures to RMEC. Release of Status Reports follows sign-off of the appropriate Regional Director.

Organizational Structure
PSARC includes a Chairpersons Committee, a Secretariat and the following five standing Subcommittees:

Groundfish, Pelagic, Invertebrates, Salmon, and Habitat

Working Groups can be established by RMEC on an as-needed basis. Additional *ad hoc* Working Groups address issues assigned by RMEC.

PSARC Subcommittees provide the scientific basis for advice on salmon, pelagic, invertebrate and groundfish stocks currently harvested in the Pacific Region, or with potential to be harvested, and on fish habitats and fisheries ecosystems. PSARC Subcommittees serve as the primary Pacific Region forum for peer review and evaluation of scientific research and literature as well as traditional ecological knowledge.

Fisheries and Oceans Canada is committed to open and transparent peer review and advisory processes, including participation of individuals from outside the department. Subcommittee meetings are open to individuals not employed by the department, including individuals from academia, First Nations, stakeholders, other government or private institutions, and the general public. PSARC recognizes four groups of participants in Subcommittee meetings: 1) Subcommittee members, 2) invited technical experts, 3) external participants, and 4) observers.

Documents
Three categories of documents are prepared for PSARC Subcommittees:

Working Paper — A PSARC document that has been peer reviewed.
Fishery Update — A brief compilation of fishery statistics and/or information that has not been analysed or interpreted.
Draft Status Reports — A document that contains clear, concise, and jargon-free information on the status of stocks and habitat.

PSARC produces an Advisory Document after each Subcommittee meeting. Advisory Documents are presented to RMEC and they become the Region's official records of scientific opinion.

PSARC publishes and distributes Stock Status Reports and Habitat Status Reports following the review process. The CSAS Research Document series is the primary vehicle for releasing and archiving approved Working Papers.

INTRODUCTION

Fisheries and Oceans Canada is responsible for the management and conservation of Canada's fisheries resources and their habitat in marine and inland waters. This mandate requires providing scientific knowledge and advice to clients, partners and the operational Branches of Fisheries and Oceans to support their activities. The objective of the Pacific Scientific Advice Review Committee (PSARC) is to provide peer reviewed information and advice on the status of stocks, their habitats and ecosystems in the Pacific Region.

In delivering this objective, PSARC also:

- advises on resource assessment needs and reviews data collection and analytical methods employed in the stock assessment process;
- reviews information on habitat, ocean environment, fisheries, and other factors which may affect the status or trajectory of stocks, and;
- presents advice to senior management on stock and ecosystem status and on biological aspects of management, including biological objectives for management and biological consequences of management alternatives.

The principles that guide the PSARC process are:

- to provide reliable advice on the status of fish stocks and their habitat;
- to be timely, responsive and flexible to clients needs;
- to employ the most appropriate and credible scientific methods;
- to provide scientific review on the full range of regional resource management issues;
- to involve First Nations, stakeholders, other government departments, and outside scientific experts in the review process;
- to provide a visible and public document trail, and;
- to foster interaction with other regional advisory processes, as well as facilitate the advancement of resource assessment science through the organization and participation in national meetings and workshops.

PSARC consists of a Secretariat, a Chairpersons Committee, five Subcommittees, and *ad hoc* Working Groups. The technical work of PSARC is performed by the Groundfish, Pelagic, Invertebrate, Salmon and Habitat Subcommittees, and by special Working Groups established by Resource Management Executive Committee (RMEC). The Chairperson of PSARC is appointed by and reports to the Regional Director-General and the Regional Director of Science. Subcommittee chairs are approved by RMEC, and report in their PSARC role to the Chair of PSARC.
PSARC works in consultation with the Canadian Stock Assessment Secretariat, which has a national co-ordinating role for:

- policy direction on the process of assessment and review;
- policy direction on the process for liaison with clients;
- production of reports and documents;
- interregional compatibility and exchange of information and approaches to assessment;
- identification of emergent stock assessment issues.

RESPONSIBILITIES OF THE PSARC REVIEW AND ADVISORY PROCESS

1. PSARC is the Pacific Regional body responsible for review and evaluation of all scientific information on the status of living aquatic resources, their ecosystems, and biological aspects of stock management.
2. PSARC is the Pacific Regional body responsible for provision of advice on stock status and potential biological consequences of fisheries management actions and natural events to RMEC and other bodies.
3. PSARC reviews scientific information and knowledge, and provides advice on various fisheries, habitat, and ecosystem issues relevant to assessing status and trajectories of stocks, or otherwise referred to it by RMEC or other competent bodies.
4. PSARC provides recommendations for co-ordination of resource assessment and related projects among Divisions and Branches.

PSARC ORGANIZATIONAL STRUCTURE AND FUNCTION

PSARC includes a Secretariat, a Chairpersons Committee, five standing Subcommittees (Groundfish, Pelagic, Invertebrates, Salmon and Habitat), and Working Groups established by the RMEC on an as needed basis.

Chairpersons Committee

The Chairpersons Committee has responsibility for integrating the information produced by the Subcommittees and the Working Group(s). The Committee deals with co-ordination and consistency among Subcommittees and Working Groups, and provides overall direction to Subcommittees and Working Groups.

Chairpersons Committee responsibilities:

- receives Advisory Documents;
- co-ordinates the PSARC meeting schedule;
- identifies common scientific and administrative issues;
- provides an overview of linkages between species groups; and

- sets editorial policies for PSARC documents.

The Chairpersons Committee is chaired by the Chair of PSARC and meets at least twice per year and as required.

Composition
The Chairpersons Committee shall include the following members:
PSARC Chairperson (Chair)
5 PSARC Subcommittee Chairpersons
Working Group Chairperson(s)

Responsibilities of the PSARC Chair
The responsibilities of the Chair of PSARC are to:
- schedule Chairpersons Committee meetings and co-ordinate arrangements;
- communicate proposed agendas to members;
- distribute documents in advance of meetings;
- chair Chairpersons Committee meetings;
- co-ordinate preparation of the Advisory Documents, Chairpersons Committee reports and minutes;
- prepare RMEC minutes;
- co-ordinate the presentation of PSARC documents to RMEC;
- communicate with RMEC regarding upcoming PSARC activities;
- ensure Subcommittees and Chairpersons Committee receive feedback on decisions and actions on PSARC items;
- serve as primary contact between CSAS and PSARC; and
- participate in the annual workplanning process.

The role in workplanning is met through interacting with fisheries, oceans and habitat managers to determine the full range of Regional requests for advice to be met by PSARC, and with Science line managers to ensure the working papers required for Subcommittee meetings are included in annual workplans. The liaison is primarily with Regional Directors and Division Heads or their designates.

The Chair is supported in these tasks by a Secretariat, which consists of support assigned by the Regional Director of Science and supervised by the Chair of PSARC.

Responsibilities of Chairpersons Committee Members
PSARC Chairpersons Committee members:
- attend all Chairpersons Committee meetings; and
- send copies of all correspondence, reviews, and reports pertaining to PSARC business to the PSARC Secretariat so that current files can be maintained.

Schedule of Meetings
The Chairpersons Committee has at least two meetings annually. Other meetings may be called as required by the Chair, by RMEC, or by request of a Regional Branch Director.

SUBCOMMITTEES

General Responsibilities of Subcommittees
PSARC Subcommittees serve as the primary Pacific Region forum for peer review and evaluation of scientific research, literature, and traditional ecological knowledge necessary for the discharge of PSARC responsibilities within their specific subject areas.

PSARC Subcommittee responsibilities are to:
- deliberate agenda items in ways which are rigorous, thorough, impartial, and professional;
- review all documents and traditional ecological knowledge contributed by participants, within an appropriate context for each type of contribution;

- provide a consensus interpretation of each agenda item wherever possible. Where a consensus cannot be reached, the merits and short comings of alternative interpretations are specified in the Advisory Document;
- present a clear and focused summary of the discussion of the state of knowledge and information relevant to each specific request for advice which has been referred to a Subcommittee;
- provide documentation of the basis for their deliberations and discussions, in the form of Advisory Documents and draft Status Reports.

Composition

The following five Subcommittees deal with the specialized areas indicated:

PSARC Salmon Subcommittee
PSARC Pelagic Subcommittee
PSARC Groundfish Subcommittee
PSARC Invertebrate Subcommittee
PSARC Habitat Subcommittee

Additional *Ad hoc* Working Groups address issues assigned by RMEC.

Participation at Subcommittee meetings shall be open to all Fisheries and Oceans Canada staff interested in the scientific review of stock assessment, and provision of advice on status of stocks or other matters referred to the Subcommittee by RMEC or the Chair of PSARC. Subcommittee meetings are open to public participation (see Policy Governing Public Participation in PSARC). All participants must agree to adhere to accepted scientific standards of impartiality and objectivity on matters of fact and interpretation, and to comply with requirements for confidentiality prior to release of documents. External participants and observers must also comply with such procedures as are necessary to ensure no conflicts of interest occur. The specific procedures will vary with fisheries and stocks being reviewed, but will be specified to participants.

Subcommittee Chairpersons are appointed by RMEC for a term of two years. The Subcommittee may nominate chairs. If the Subcommittee fails to identify appropriate candidates, the Chair of PSARC, Branch Directors, and Heads of the corresponding Science Division will develop a list of nominees.

Responsibilities of Subcommittee Chairs

Responsibilities of Subcommittee Chairpersons are to:

- communicate proposed agendas to members, participants and reviewers;
- co-ordinate preparations for Subcommittee meetings;
- review Working Papers in order to:
- identify assessments where line management may need to establish an assessment team;
- alert the PSARC Chairperson to possible changes in advice on stocks or other issues;
- schedule meeting times efficiently; and
- select appropriate reviewers;
- track the status of Working Papers, draft Status Reports and other documents in advance of meetings, and communicate with line managers or non-departmental staff to ensure compliance with deadlines;
- select internal and external reviewers of Working Papers, provide them with guidelines for their reviews, and transmit documents among authors and reviewers;
- provide the PSARC office with two copies of all Working Papers and draft Status Reports tabled at meetings, written reviews, and final approved Working Papers;
- process all Subcommittee documents;
- chair the Subcommittee meetings;
- present Advisory Documents to RMEC;
- communicate to authors changes in Working Papers required to rectify deficiencies identified during the review process;

- approve Working Papers for inclusion in the CSAS Research Document series once authors have made revisions required by the Subcommittee.

Subcommittee Chairperson approval only recognizes that the revisions requested by PSARC have been completed. Line managers may have additional approval mechanisms required before documents are transmitted to the CSAS office.

General Responsibilities of Subcommittee Members

The responsibilities of Subcommittee members are as follows:

- read any distributed documents before the meetings;
- ensure that oral and written contributions comply with accepted scientific standards of objectivity and impartiality, even when contributions are traditional ecological knowledge rather than scientific studies;
- ensure that Working Papers, Fishery Updates, draft Status Reports, or reviews of Working Papers are not distributed except according to the approval procedures specified in the Terms of Reference of PSARC or CSAS;
- ensure all matters discussed in Subcommittee meetings or included in Working Papers are treated as completely confidential until release of the corresponding Advisory Document and Status Reports.

Non-Departmental participants should present material in written form wherever possible, even if not as Working Papers or Fishery Updates. Acceptance of submitted material will be governed by accepted scientific standards. Written material will be retained and made available on request to the PSARC office. Revised Working Papers by non-departmental employees can be included in the CSAS Research Document series, as long as they are accepted by the Subcommittee and comply with the standards of the series.

Approved Advisory Documents become the Region's official record of scientific opinion of the topics included. Communications by individual Subcommittee members on these topics should ensure that this record is presented.

Roles and Responsibilities of the Salmon, Pelagic, Invertebrate, Groundfish and Habitat Subcommittees

These PSARC Subcommittees provide the scientific basis for advice on salmon, pelagic, invertebrate and groundfish stocks currently harvested in the Pacific Region or with potential to be harvested, and on fish habitats and fisheries ecosystems. The scientific basis for advice will include the status of stocks and potential consequences of specific management actions where appropriate, and may address environmental and habitat factors or other influences on the stocks or their aquatic ecosystems. In developing the scientific basis for advice, these Subcommittees:

- respond to requests from RMEC directed through the Chair of PSARC;
- review all pertinent information and analyses, and conduct such analyses as may be required to establish the status and trajectories of stocks, habitats or ecosystems including estimates of uncertainty;
- where possible, provide estimates of specific target and limit biological reference points, with an explanation of how the reference points were selected and estimated;
- where necessary, provide estimates of biological consequences for specific management measures under consideration, taking into account uncertainties in analyses and underlying biological/environmental relationships, and indicate the probability of the stock falling or remaining below a limit reference point;
- review programs for assessment of stocks, habitats and ecosystems and comment on their relevance and efficiency;
- review requirements for assessment of stocks, habitats and ecosystems, and recommend to RMEC programs which may be required;
- maintain a written record of the proceedings of each Subcommittee meeting, documenting the recommendations of the Subcommittee and the scientific basis for such recommendations.

DOCUMENTS

Documents submitted to Subcommittees
Documents prepared for PSARC Subcommittees shall be in one of three categories:

(a) Working Paper - A PSARC document that has been reviewed by at least one individual, internal and/or external to the Subcommittee, prior to presentation and review at a Subcommittee meeting.
(b) Fishery Update - A brief compilation of fishery statistics or information presented to a PSARC Subcommittee meeting, that has not been analysed, interpreted, or reviewed.
(a) Draft Status Report - A document that contains clear, concise and jargon-free information on the status of stocks and habitat or other appropriate topics that will be reviewed by the Subcommittee.

Working Papers are due three weeks before the scheduled Subcommittee meeting. Written comments on PSARC Working Papers are required one week prior to Subcommittee meetings. This lead-time is required to permit authors to make appropriate changes to their Working Paper or prepare constructive responses to reviewers' comments.

Reviews of PSARC Working Papers, like other scientific reviews, are released only to members of the relevant Subcommittee unless they are pertinent to subsequent reviews. Although reviews are not distributed, they are summarized in Advisory Documents.

If a Working Paper is not accepted by the Subcommittee, the Subcommittee may decide not to include the summary and recommendations from the Working Paper in their Advisory Document, and/or suggest that the Working Paper be revised and re-submitted at a future Subcommittee meeting. Subcommittees may accept only portions of Working Papers and specify revisions which must be made. Subcommittees may also accept only some or none of the recommendations suggested in a Working Paper, regardless of the status of the Working Paper itself, and may include additional recommendations in its Advisory Document.

PSARC Working Papers are to be marked **DRAFT** until they are accepted. Revisions to Working Papers must be completed and accepted within 45 days of review by a Subcommittee. PSARC Working Papers cannot be cited, except within other PSARC documents.

The cover page of all Working Papers must have the following footnote: "NOT CITABLE: PSARC Working Papers document the scientific basis for fisheries management advice in the Pacific Region of Fisheries and Oceans Canada. As such, they provide one component of the assessment process and are not intended as comprehensive treatments of stock or habitat management."

PSARC Fishery Updates consist of factual information with little analysis or interpretation (e.g., presentations of catch data). Fishery Updates do not require review prior to a meeting but may be included as a basis for material in the Advisory Document. The Subcommittee Chair is responsible for providing two copies to the PSARC Secretariat. Distribution of Fishery Updates is the responsibility of the author and their line management, and should conform to any policies and procedures for distribution of unpublished data and analyses.

Authors of Working Papers or other staff assigned by line managers prepare drafts of Stock Status Reports (SSRs) and Habitat Status Reports (HSRs). Templates for Status Reports are available from the PSARC Secretariat and/or the Canadian Stock Assessment Secretariat. The draft Status Reports are submitted by authors to the Subcommittee Chair for review at the Subcommittee meeting.

Documents Prepared by PSARC
An **Advisory Document** is produced after each Subcommittee meeting. The Advisory Document contains an executive summary, summaries of Working Papers and other documents presented at the Subcommittee meeting, summaries of reviewers' comments and relevant authors' clarifications,

summaries of ancillary information contributed at the meeting, and the Subcommittee's discussions including recommendations to RMEC. Subcommittee Chairs are responsible for preparation of Advisory Documents. The Subcommittee approves Advisory Documents, which are presented to RMEC. Advisory Documents are released after presentation to RMEC. The PSARC Secretariat distributes PSARC Advisory Documents.

Stock Status Reports (SSR) and **Habitat Status Reports (HSRs)** contain clear, concise, and jargon-free information on the status of stocks, habitat, or other appropriate topics. Following the Subcommittee reviews and approvals, Status Reports are edited for readability and format. After the editing has been completed, the appropriate Branch Director signs off and transmits the status reports to RMEC. Following the RMEC meeting, the appropriate Branch Director transmits these documents to the appropriate ADM. If there are sensitive issues, a briefing note will be prepared and transmitted with the documents. The Chair of PSARC prepares the letter of transmittal for the Branch Director's signature.

The PSARC Chairperson is responsible for preparation of Chairpersons Committee Reports and minutes of Committee and RMEC meetings. Responses to advice in Advisory Documents are documented through minutes of the RMEC meetings.

The PSARC Secretariat publishes and distributes the Status Reports, and the electronic form is entered on the Fisheries and Oceans Canada, Pacific Region Science SeaLane Internet site, as part of the national series co-ordinated by CSAS.

PSARC OPERATIONAL GUIDELINES
Each step outlined in the overview involves a number of activities.

Consultation regarding schedules and agendas
Each year the Chair of PSARC and the Subcommittee Chairs must have a full grasp of the range of information and advisory requirements of Fisheries and Oceans Regional fisheries managers and other groups to which PSARC provides advice. This understanding is used to develop the agendas for the Subcommittee meetings and the list of Working Papers which must be tabled. Workplanning in the Region must accommodate these Working Papers. Also, national initiatives in the review and advisory process must be reflected in Regional activities. These needs require close consultation and exchange among PSARC, regional managers in Science, Operations, Habitat and Enhancement, Oceans, and CSAS.

Review of data with clients
Client groups, both internal and external, should have confidence that assessments have considered all information relevant to the stocks or issues assessed. This means that Fisheries and Oceans Canada must note and address client concerns about data to be used. If data considered relevant by client groups are not used in the assessments, then Working Papers should comment on the relevance of those data.

The review of data is best done by the scientists and biologists responsible for subsequent analyses. Opportunities for efficiencies in coverage of many stocks with a client group should be taken. The most conspicuous data consultations would be with fishers regarding data on fish. However, discussions with professionals in management, habitat, and environmental fields (marine, freshwater, climate and public interest groups) are also important.

Preparation of Working Papers in advance of the assessment review meeting
The one or more working papers per assessment should:

1. be complete in coverage of data and model structure for the models employed. Important time series of data should be presented annually. Sampling and analytic methodology should be documented. To the extent possible, environmental and habitat considerations should be covered, as well as traditional fisheries knowledge;

2. include performance statistics of models, both retrospective performance and sensitivity to alternative parameter values;
3. describe uncertainty in parameter estimates, present status and forecasts, where possible;
4. present results of alternative plausible models or incompatible data sets when they exist. Selection among models should usually be made on the basis of model performance (either retrospective or current goodness-of-fit / maximum likelihood) and rationale for selection should be explained clearly. If selections are based on biological arguments, this rationale should also be explained fully;
5. not include recommendations on management actions, but include results or implications of management actions as specified by managers or RMEC if relevant;
6. be reduced to an Interim Assessment if agreed to by the Chair of PSARC, the accountable fisheries or habitat manager, and the Head of the appropriate Division, Science Branch. Interim Assessments may be reduced only to the extent that all necessary elements can be referenced from previous Working Papers and the information presented is suitable for evaluation of stock status. All Interim Assessments should contain updated time series of important data sets; and
7. reflect the discussions and progress of a working group, in instances where one has been assigned to contribute to an individual assessment.

PSARC Stock Assessment Review

1. On receipt of a Working Paper, the Subcommittee Chair will send the paper to one to three reviewers, who shall return written reviews within the time specified in the Terms of Reference. The reviews will be provided to Working Paper authors in advance of the Subcommittee meeting, and authors will have the opportunity to revise the Working Paper or otherwise respond to reviewers' comments.
2. Subcommittee meetings are chaired by the relevant PSARC Subcommittee Chairperson. For each stock or issue being assessed there will be a presentation of data, models, and analytical content of Working Paper(s), and of reviewers' comments and authors' responses.
3. PSARC will review Working Papers pertaining to stocks, habitats or ecosystems of interest submitted by client groups. Client group authors will participate fully in presentation and review. The same standards, deadlines, and review procedures will be applied to all Working Papers. Assessments prepared by a non-PSARC scientific body or Technical Committee are also subject to PSARC review.
4. The written reviews and Subcommittee discussion should highlight any serious problems with data, models, or the resource. The review should cover all aspects of the assessment (or other type of activity), including:
    (i) Sampling design of all data sources.
    (ii) Intermediate data processing steps (pooling, interpolating, smoothing, weighting, "correction factors").
    (iii) Model algorithms.
    (iv) Model assumptions about both processes and error structure.
    (v) Estimation methods.
    (vi) Measurements of uncertainty and its propagation in the analysis.
    (vii) Sensitivity testing of model assumptions and parameters.
    (viii) Consideration of plausible alternative models.
    (ix) Presentation of results in a form that assures that management advice needs are addressed.
5. Working Papers will be rejected by the Subcommittee and may not be included in the Advisory Document if the Subcommittee concludes that the Working Paper does not meet suitable scientific standards and cannot be revised in a timely manner. Where there is a specific request for advice and the relevant Working Paper has been rejected, summaries of the Working Paper, reviewers' comments, and Subcommittee discussion should be included in the Advisory Document. The report should state clearly the reasons for rejecting the Working Paper and the basis for whatever advice is provided in response to the request.
6. Subcommittee review can consider ancillary information, and traditional ecological knowledge. Critical discussion of other types of knowledge will depend on the type and form of information or data tabled, but is kept within a scientific framework. Inclusion of the information in the Advisory

Document will depend on the degree to which Subcommittee discussions and conclusions are affected by the information. Where such information is included in the Advisory Document, the contributors of the information shall be identified.

Development of consensus on stock status

1. Where possible, a consensus among all participants in the PSARC review will be developed. Where consensus is not possible, evaluations of the alternative interpretations should be recorded. These evaluations should present the evidence supporting or contradicting each alternative, highlight the consequences of the alternatives to the interpretation of stock, habitat or ecosystem status, and, where relevant, identify the proponents of alternative interpretations.
2. The estimated uncertainty of each option or estimates which the Subcommittee considers plausible should be included in the report.
3. Clear directions for the content of SSRs or comparable communications products should be specified, including necessary figures and tables to be included.

Preparation and release of scientific information, advice, and documents

1. PSARC Advisory Documents are prepared as quickly as possible following each meeting. The Advisory Document will contain the results of PSARC deliberations and both internal and public contributions.
2. Advisory Documents are released following presentation to RMEC. Subcommittee Chairs may distribute draft and final copies of Reports and Advisory Documents to Subcommittee members. The PSARC Secretariat is responsible for other distribution of these documents.
3. Stock Status Reports will be prepared for all major stocks assessed by PSARC. These reports should be brief, factual, and written for an informed public audience. They should adhere to the style and processes of CSAS and contain the material directed by the Subcommittee and Chairperson of PSARC. Status Reports on habitat and ecosystem topics may be produced for inclusion in appropriate Regional and National series.
4. Stock Status Reports are maintained on the Internet by CSAS in pdf format.
5. The CSAS Research Document series will be the vehicle for releasing and archiving approved Working Papers. Fisheries Updates are appropriate for inclusion in the Research Document series, if accepted by the corresponding Subcommittee, revised if necessary and approved by the appropriate Subcommittee Chair and line manager.

Appendix 2. Policy Governing Public Participation Policy in PSARC

INTRODUCTION

The purpose of this paper is to describe the policy governing public participation in the Pacific Scientific Advice Review Committee (PSARC) process. PSARC is the Pacific Regional body responsible for review and evaluation of all scientific information on the status of living aquatic resources and their ecosystems, and on biological aspects of stock management.

PSARC provides internal and external clients with scientific information and advice that is reliable, relevant, timely and comprehensive.

PSARC advises the Resource Management Executive Committee (RMEC) of Fisheries and Oceans Canada and other bodies on stock and habitat status and potential biological consequences of fisheries management actions and natural events.

PSARC includes a Chairperson's Committee, a Secretariat, and five Subcommittees (Groundfish, Pelagic, Invertebrates, Salmon, and Habitat). PSARC Subcommittees serve as the primary Pacific Region forum for peer review and evaluation of scientific research and literature as well as traditional ecological knowledge.

PSARC Subcommittees provide the scientific basis for advice on salmon, herring, invertebrate and groundfish stocks in the Pacific Region harvested presently, or with potential to be harvested, and on fish habitats and fisheries ecosystems.

PSARC recognizes four groups that may attend Subcommittee meetings:

- Subcommittee Members – Subcommittees are comprised of Fisheries and Oceans staff and individuals from the B.C. Ministry of Fisheries.
- Invited Technical Experts – Includes individuals from academia, DFO scientists from other regions, consultants and scientists from other government agencies.
- External Participants - Includes individuals from First Nations, stakeholder groups, and members or delegates of the Pacific Fisheries Resource Conservation Council (PFRCC).
- Observers – Any interested party may attend as an observer at the confirmation of the Subcommittee chair.

PUBLIC PARTICIPATION IN PEER REVIEW SESSIONS

Fisheries and Oceans Canada is committed to open and transparent peer review and advisory processes, including the participation of individuals from outside the Department.

Principles of Participation

- PSARC Subcommittee meetings are open to individuals not employed by Fisheries and Oceans Canada including individuals from academia, First Nations, stakeholders, other government departments, and the general public.
- PSARC recognizes four groups that may attend Subcommittee meetings --Subcommittee members, invited technical experts, external participants, and observers.
- Participants agree to not assume an advocacy role for any sector, organization or geographic area.
- Subcommittee members, invited technical experts and external participants have access to documents associated with the meeting.
- Subcommittee members, invited technical experts, and external participants have full opportunity to participate in discussions, and may develop advice and recommendations.
- The purpose of the Subcommittee meeting is solely for scientific peer review of the status of stocks, habitat, and other biological questions on the agenda. Concerns regarding other non-scientific issues, including fisheries management policies and allocations, for example are discussed in other fora.
- All participants must adhere to the provision of non-disclosure. Information received from PSARC must not be disclosed until the information is publicly released.
- In the case where participants hold commercial fishing licenses or individual quota, the participant must agree, in writing, to neither buy nor sell licenses and/or quota shares until PSARC information is publicly released.

Practices to Follow For Participants

- **Invited Technical Experts**
- Invited technical experts take a significant role in reviewing the technical content of the scientific work.
- Invitations to technical experts should be made in writing by the PSARC Subcommittee chair.
- When selecting technical experts, the PSARC Subcommittee chair will normally consult with the assessment biologists, and other Fisheries and Oceans Canada staff most knowledgeable of the stocks, the habitats (or other scientific questions) being reviewed.
- Desirable characteristics of invited technical experts include:
  - Technical knowledge of agenda items;
  - Stature and respect in the eyes of peers;
  - Ability to communicate clearly and effectively; and
  - Understanding of the goals and procedures of the review process.
- The written invitation states clearly that:

  - The individual is invited on the basis of his or her personal scientific qualifications, and not as a representative of any group, sector or geographical area; and
  - Documents distributed before and at the meeting are DRAFTS and MUST be treated as confidential (see provision for non-disclosure above).
- Travel costs of technical experts may be paid, but other remuneration is not offered.

External Participants

- Selected external participants are notified in writing by the PSARC Subcommittee chair.
- When selecting external participants (normally 3-10), the PSARC Subcommittee chair will normally consult with the assessment biologists, fishermen, managers and other Fisheries and Oceans Canada staff most knowledgeable of the stocks, the habitats (or other scientific questions) being reviewed.
- Desirable characteristics of external participants include:
  - Knowledge (habitat, fishery or traditional) of agenda items;
  - Stature and respect in the eyes of peers;
  - Ability to communicate clearly and effectively; and
  - Understanding of the goals and procedures of the review process.
- Notwithstanding the important requirement that external participants are not acting as representatives of specific sectors, interest groups or geographic areas, care will be taken to ensure external participants reflect a diversity of perspectives.
- The written notification states clearly that:
  - The individual is participating on the basis of his or her personal qualifications, and not as a representative of any group, sector or geographical area;
  - Scientific peer review includes the use of traditional ecological knowledge, and external participants are encouraged to contribute their knowledge in written or verbal presentations;
  - Documents distributed before and at the meeting are DRAFTS and MUST be treated as confidential (see provision for non-disclosure above); and
  - If the agenda includes stocks managed under limited entry or Individual Quota, external participants are asked to return a letter agreeing not to sell licenses or trade quota shares nor disclose confidential information between receipt of documentation and public release of the relevant Advisory Document and/or Status Report.
- Individuals must agree to adhere to accepted scientific principles of objectivity and impartiality.
- Fisheries and Oceans Canada does not reimburse travel costs for external participants.

Selection Process For External Participants

- There will be advance notice of PSARC Subcommittee meetings (e.g., posted on PSARC Internet site) including the name and phone number of the Subcommittee chair and instructions informing individuals wishing to participate to contact the Subcommittee chair.
- Individuals will have an opportunity to request an invitation as an external participant.
- Requests from potential external participants should be received by the PSARC office 30 days prior to the Subcommittee meeting.
- External participants must provide a statement of qualifications that is relevant to the topics discussed at the meeting.
- The PSARC Chair and Subcommittee Chair will review the list of potential external participants and determine eligibility in a manner that is consistent with the above selection criteria.

Observers

- Subcommittee meetings are open to any interested party for participation as an observer.
- Observers must understand the goals and procedure of the review process.
- Observers must adhere to the provisions of non-disclosure outlined in Section 1 *Principles of Participation*.
- Observers are requested to notify the Subcommittee chair 15 days before the meeting of their intention to attend.
- Fisheries and Oceans Canada does not reimburse travel costs for observers.

Summary of roles, and obligations of PSARC Subcommittee participants:

	Subcom'te member	Technical expert (invited)	External participant (selected)	Observer
Understand PSARC goals and process	✓	✓	✓	✓
Have technical expertise	✓	✓		
Have fishery or traditional knowledge	✓	✓	✓	
Have access to documents	✓	✓	✓	
Contributes to technical evaluations	✓	✓	✓	
Adhere to the provision of non-disclosure	✓	✓	✓	✓
Participates in discussion	✓	✓	✓	
Participates in development of advice and recommendations[1]	✓	✓	✓	

[1] PSARC Subcommittees responsibility is to provide consensus interpretation of each agenda item wherever possible. Where a consensus cannot be reached, the merits and short-comings of alternative interpretations are specified in the Advisory Document.

Annex 4. Maritimes Provinces Regional Advisory Process Fall 1999 Report.

Introduction

This report documents activities in the Maritimes Provinces Regional Advisory Process (RAP) during November 1998 to October 1999. It was presented to the Maritime RAP Coordination Committee on 20 October to solicit its input. The report addresses:

- Action items raised at the 1998 National RAP Coordinators' Committee meeting
- Regional activities during November 1998 – October 1999
- Planned regional activities during fall 1999 – fall 2000 (see Appendix 1)
- Regional recommendations for zonal and national meetings
- Regional communications initiatives

Review of action items from the National RAP Coordinators' meeting

A review of action items is attached as Appendix 2. For those given in 1996 – 1997, the numbers refer to the action number given in Proc 98/22. Those from the 1998 meeting were assigned numbers sequentially. Overall, most of the action items were met.

Report of Regional Activities and Upcoming Plans

Structure and Process

With the separation of the Maritimes and Gulf regions early in 1999, the RAP structure and process was revisited and some modifications were made. The changes below were made available to staff through the intranet site and will be made available on the soon to be launched internet site.

- The RAP Secretariat at BIO will provide a service both to the Gulf Fisheries Management Region and the Maritimes Region.
- The standing committee structure was examined and disbanded—meetings will take place based on issues without a formal committee structure. These issues are defined by the RAP Coordination Committee.
- Chairpersons will be assigned by the RAP Coordination Committee to particular reviews, with no one individual tasked to undertake all meetings for a particular species category or subject area.
- The Environmental Trends and the Ecosystem Dynamics working groups have been disbanded and the ICCAT Working Group added. The Fisheries Management Studies and Plankton Trends working groups are continuing their activities.
- Updates are provided for some stocks using current fishery and survey information rather than conducting full assessments each year. These updates are not formally reviewed in RAP; however, the resulting SSRs are documented through the Regional Advisory Process. These updates are compiled as per CSAS guidelines.

- The sign-off for SSRs, FSRs, HSRs and RAP Proceedings has been delegated from the Regional Science Director to the meeting chair. The meeting chair is also vested with the responsibility of ensuring that the CSAS Res. Doc. include any additional technical analyses adopted at a meeting and referenced in the status reports.

These changes complete the review of the Maritimes RAP process initiated in fall 1997.

Below, the activities for November 1998 to October 1999 are reviewed. As well, plans until fall 2000 are discussed, which are also summarized in Appendix 1. It should be pointed out that a review of RAP activities since 1994 by stock is near completion and will be made available on the regional Internet site.

RAP Stock Assessment Reviews

The following **groundfish and pelagic** reviews have taken place since November 1998:

March 22-23, 1999	Gulf groundfish
March 29-31, 1999	Gulf and Scotian Shelf herring (Proc. 99/26)

Considerable discussion on preparations for the April 2000 – March 2001 fishing year was conducted. Based on these, the Scotian Shelf groundfish assessments will take place November 1-5, 1999, chaired by R. Halliday (it is expected that this time slot will not change in the future). At this meeting, the status of SA 3 – 6 porbeagle will also be considered, in support of the 2000 + zonal shark management plan. Plans for this meeting are complete with the letters of invitation recently sent. It should be pointed out that a zonal redfish review will be conducted during 18 – 19 November 1999 and will include the discussions of the Scotian Shelf redfish stock.

The southern Gulf of St. Lawrence groundfish reviews will be conducted in February 2000, with the herring assessments likely taking place in late March 2000 as usual. Again, managers have been consulted re the changes in fishing year. It is anticipated that cod will be assessed regionally this coming year rather than zonally. The plans for these meetings are currently underway.

There has been a desire expressed by NHQ to conduct a zonal review on herring. If this occurred, it would pre-empt the regional RAP. The Maritimes RAP would not support this proposal but rather one focused on methodologies used in herring assessments (see Recommendations for National and Zonal Initiatives section below).

A decision on this is required by the National RAP Coordinators' Committee (NRCC) meeting.

Invertebrate reviews were conducted on:

November 25, 1998	Scotian Shelf shrimp
January 21-22, 1999	Snow crab, southern Gulf and Cape Breton
March 29-31, 1999	Inshore scallops and offshore surfclam (Proc. 99/15)
April 21, 1999	Georges Bank scallops (Proc. 99/15)
April 28-29, 1999	Bay of Fundy rockweed

Considerable discussion was held to better time the RAP with management planning needs. Consequently, the inshore scallop assessments will now be reviewed in the fall (during 23 – 25 November this year), along with shrimp. Plans for this year's meeting are well underway. Offshore scallop will still be assessed in March 2000, as per present practice.

Snow crab will be considered in the usual timeframe in January 2000. There has been a desire expressed by NHQ, as with herring, for a zonal snow crab meeting. As with herring, it may be more profitable to conduct a scientific workshop prior to regional assessments to allow regional scientists to share tools and expertise that could be used in the RAPs. Such a workshop is currently being planned by Gulf and Laurentian regions.

A decision on this is required by the NRCC.

It had been planned to review offshore lobster in November 1999. However, the scientists involved would prefer a February 2000 review. At this time, the status of Scotian Shelf rock and Jonah crab will also be reviewed, to meet a request of the regional Developing Species Advisory Board (DSAB). A further RAP meeting to review the status of all regional LPAs (Gulf, Eastern Shelf and GOM) lobster is planned for July 2000. It might transpire that this has to be broken into two meetings (4T – 4VW & 4X – 5).

The following **Diadromous** assessments were reviewed:

Mid December 1998	Salmon updates
Mid March, 1999	Review of the Miramichi and other SFA 16 salmon

The review of the material for the ICES Working group on North Atlantic Salmon and various program planning activities also took place during the March 1999 meeting.

For the upcoming period, Maritimes salmon will be reviewed during 13 – 17 December 1999 while gaspereau and striped bass will be reviewed in February 2000. This schedule will likely be stable into the future

RAP Habitat Reviews

A review of the **interaction between wild and farmed Atlantic salmon** in the Maritimes Provinces was held during November 30 and December 4th, 1998 (Proc 99/18). This review resulted in Habitat Status Report 99/1, which is one of the most requested documents produced to date. Also during 8-10 December 1998, a workshop on the interaction between wild and artificially reared striped bass in the Maritime Provinces (Proc 99/25 and SSR D3-22) was held.

A RAP was conducted during 2 – 4 December 1998 on the assessment of the possible **environmental impacts of petroleum exploration activities on the Georges Bank ecosystem**, as part of DFO's contribution to the public hearings of the Review Panel of the Georges Bank Drilling Moratorium, which took place in January 1999. A Habitat Status Report was produced as a result of this review (HSR 99/1).

In December, 1999, a review of the **impact of agriculture on the habitat of PEI** will be conducted. It is expected that a Habitat Status Report will be produced as a result of this review.

A review of the **impacts of acid rain** in the southern uplands area of Nova Scotia as it relates to salmon stocks and their management is planned for March 2000. It is expected that a Habitat Status Report will be produced as a result of this review.

As part of the mandate of stewardship over Canada's marine ecosystems which came with the promulgation of the Oceans Act in 1997, a need to operationalize "ecosystems management" has been identified. To this end, a RAP meeting is planned for June 2000 to examine the **ecosystem of the southern Gulf of St. Lawrence and eastern Scotian Shelf**. It is expected that a Habitat Status Report will be produced as a result of this review.

Plans of all these activities are well underway with remits either complete or in second draft stage and meeting arrangements made.

Transboundary Resources Assessment Committee

The second meeting of the joint Canada/US Transboundary Resources Assessment Committee (TRAC) was held in St. Andrews, N.B. in April 1999 (Proc. 99/13) to review the assessment of resources in the Gulf of Maine transboundary area. Stocks considered were the Canadian stocks of Georges Bank cod, haddock and yellowtail. Preliminary results of the Georges Bank longline survey were also considered. The beginning of year plan was for the Canadian stocks to be reviewed at this meeting and the US stocks at a November 1999 TRAC meeting. However, the New England Fisheries Management Council (NEFMC) requested updates on all their groundfish stocks by late summer and thus a special non-TRAC meeting, attended by Canadian scientists, was conducted in Woods Hole during 27 – 29 July. This pre-emptied the November TRAC meeting and resulted in differences in yellowtail stock status, contrary to the intent of TRAC. It was recognized that this was an undesirable outcome of the events in 1999. A meeting of Canadian and US scientists was held in association with the ICES Stockholm meeting and plan to get the schedule back 'on TRAC' developed.

In 1998, the TRAC meeting had identified a need for a national Canada/US workshop on stock assessment methodology. In fall 1998, it was realized that this would be too ambitious and consequently the specific issues that needed addressing (bias correction) would be considered at ICES ComFie in Miami in January 1999, which they were.

In 2000, it is expected that a TRAC meeting to consider the Canadian and US Georges Bank groundfish resources will be held in April – May, the specific timing to be set based on consultation among the scientists and managers involved.

The Maritimes GOMAC has discussed and approved the consideration of Gulf of Maine lobster at the either 2000 or 2001 TRAC meeting. Problems on both sides of the border make November 2001 the earliest date for a TRAC on lobster.

Re herring, there is a desire on the part of the industries of both nations to conduct a review in TRAC. This had been tentatively planned for April 2000. However, US scientists feel that a meeting in 2001 would be more profitable due to the enhanced availability of new acoustic survey data.

Mackerel has been removed from the TRAC 2000 agenda by the US since it is being reviewed by the SARC in November 1999.

Guidance from the NRCC is required on this.

RAP Working and Study Groups

The **Environmental Trends Working Group** was disbanded as part of the RAP as its activities are being subsumed with the new Zonal Monitoring Committee.

The **Fisheries Management Studies Working Group** held two meetings in 1999, one on February 24-25 and another on June 21-23. Discussion was initiated on the implementation of the Precautionary Approach in the management of harvest fisheries in the Maritimes Region and a review of studies that had been supported under the Strategic Science Fund project on the Evaluation of Fishery Management Systems in 1998 and 1999. These included an evaluation of the Dockside Monitoring Program, an evaluation of fishing effort regulation, a description of the functioning of Community Management Boards, and a pilot implementation of a method for detection of discarding at sea. A statistical model of optimal observer coverage and deployment was also discussed. Details are contained in Proceedings 99/27. A major product of these meetings will be a discussion paper on the Precautionary Approach – what it is and what are the potential implications for regional fisheries. As the working group is multi-sector, the process whereby the paper has been compiled has in itself been very constructive. It is planned to table this report at a meeting of the RAP Coordination Committee this fall for discussion on follow-up action. This will likely include broad circulation and discussion on the paper in the region. It is expected that this group will continue its relatively high activity level into 2000.

The **Plankton Trends Working Group** has been meeting to compile its analyses of an overview of the state of plankton in the northwest Atlantic. This will be presented at the spring meeting of the Fisheries Oceanography Committee and a zonal SSR will be produced. The relationship of this group to the new Zonal Monitoring Committee may need to be resolved.

Guidance from the NRCC is required on this.

The new **ICCAT Working Group** held a meeting on June 29th, 1999 in its mandate to provide a scientific review of the Canadian inputs to the stock assessments of the International Commission for the Conservation of Atlantic Tunas. The main species reviewed at the meeting was swordfish. Proceedings 99/19 record the results of this meeting. It is expected that this group will meet again in June 2000.

As per ADM Science guidelines, a **special RAP working group** was struck to review a regional submission to the Committee On the Status of Endangered Wildlife In Canada (COSEWIC) on the **status of the inner Bay of Fundy salmon.** The review was completed in September 1999 and examined the distinctness of the stock as well as the status of the resource using current COSEWIC guidelines, (see Proceedings 99/29 plus the submission to ICUN). In the Maritimes Region, it is planned that, as COSEWIC issues arise, that a working group approach will be used to review the submissions.

The NRCC needs to discuss whether or not a common approach to COSEWIC is required and if so what this is.

A **national Study Group,** initiated by the Maritimes Region, has been struck, with NSDC approval, to consider what is known nationally on the impacts of bottom dragging on the ecosystem. Don Gordon of BIO chairs the group, which will meet until summer 2000 to compile a report by that fall. Participation of each region in this group is currently being solicited.

A special **Training Session on Assessment Methodology** is planned for summer – fall 2000 to improve staff skills in emerging assessment techniques. A combination of in-house and external expertise will be used to develop the session outline.

Summary

During the review period (November 1998 to October 1999), 29 SSRs, three Habitat Status Reports, two Fisheries Status Reports, and nine Proceedings were produced by the approximately 17 meetings that took place. Five proceedings are outstanding but are nearing completion.

Recommendations for National and Zonal Initiatives

The following initiatives have been identified for consideration at a higher than regional level:

1. Zonal workshop on assessment approaches/methods for specific species. Rather than conducting assessment meetings zonally, it may be more productive to conduct workshops focused on the technical assessment issues of particular species involving only the scientists. These meetings would be conducted outside of the RAP cycle. Scientists would return to their regions to conduct RAPs as per current practice, benefiting from the discussion in these workshops. Such a meeting is currently being planned for snow crab. This region would support a similar meeting for herring rather than a zonal herring assessment meeting.

2. Workshop on Strategic Reference Points for Snow Crab: This has been on the agenda since November 1998. A summer 2000 timing would be convenient for the Maritimes.

3. National workshop on reference points for the incorporation of ecosystem considerations into fisheries management, including MEQ guidelines. There have been recent developments that could be used to guide regional initiatives in this area. It is noted that there is to be a LMR GOOS workshop this spring (Appendix 4) which will discuss this issue. Perhaps this initiative could subsume this requirement.

Communications and Service Delivery

Printed Media

There have been no new developments in this area since last year.

Electronic Media

The **intranet** continues to serve departmental clients looking for information on the products of the Maritimes process (see Appendix 3). An **internet** page will be launched this fall to make electronic versions of the Habitat Status and Fisheries Status reports and Proceedings available to a wider audience, as well as information on schedules, meeting agendas, etc. This page will be linked to the CSAS website.

Informatics Branch has done a study on the **fax on demand** system in use at the Communications Secretariat, and there may be plans to upgrade the system in 2000.

Other Media

Videos were not produced this year because of time constraints and conflicting priorities.

Hits on the RAP intranet site

Details of the hits on the intranet site for the period January 1999 to October 1, 1999 are contained in Appendix 3. A comparison of the hits for the similar period is 1998 is presented below:

Month	1998	1999
January	138	813
February	554	761
March	342	995
April	318	1586
May	527	494
June	602	437
July	341	481
August	325	489
September	419	631
Total	3566	6687

Overall, there has been around a 50 percent increase in the number of hits of the website.

Appendix 1. Fall 1999 – Fall 2000 RAP Schedule

Group	Chair	Stocks/Issues	Meeting Date	Status
National Study Group	D. Gordon	Impacts of trawling	Oct 1999 – Fall 2000	Agreed by NSDC
Maritimes RAP for COSEWIC	E. Kenchington	Inner Bay of Fundy Salmon	30 Sept 1999	Review complete and paper submitted to COSEWIC
Maritimes RAP	R. Halliday	Scotian Shelf finfish & shark	1 – 5 Nov 1999	Invites sent out
Maritimes RAP	R. Lavoie	Scotian Shelf shrimp & inshore scallops	23 – 25 Nov 1999	Invites soon to be sent out
Maritimes RAP	A. Ducharme	Impact of PEI Agriculture on Habitat	6 – 9 Dec 1999	Invites soon to be sent out
Maritimes RAP	J. Ritter	Maritimes Salmon	13 –17 Dec 1999	Ritter & O'Boyle to finalize remit
Maritimes RAP	M. Chadwick	Snow Crab, including 4X	January 2000	Chadwick & O'Boyle to finalize remit
Maritimes RAP	E. Kenchington	Inshore/Offshore Lobster Interaction, LFA 41 & Rock & Jonah Crab for DSAB	February 2000	Kenchington & O'Boyle to finalize planning
FMSWG	R. Halliday	Fisheries Management issues	February 2000	Halliday to prepare agenda
Maritimes RAP	M. Chadwick	Gulf Groundfish	February 2000	Chadwick & O'Boyle to finalize remit
Maritimes RAP	G. Chaput	Gaspereau & Striped Bass	Last week Feb 2000	Ritter & O'Boyle to finalize remit
Plankton Trends WG	G. Harrison	Status of Plankton	March 2000 FOC	Work proceeding as planned
Maritimes RAP	J. Ritter	Impact of Acid Rain	Mid March 2000	Ritter & O'Boyle to finalize remit
Maritimes RAP		Maritimes herring	Late March 2000	O'Boyle, Stobo & Chadwick to develop remit
Maritimes RAP		Offshore scallop	March 2000	Smith & O'Boyle to develop remit
TRAC	S. Clark	Georges Bank groundfish	Late April 2000	Clark & O'Boyle to develop remit
Maritimes RAP	R. O'Boyle	Overview of Gulf & Eastern Scotian Shelf Ecosystem	June 2000	Sinclair & O'Boyle to finalize remit
ICCAT WG	J. Neilson	Preparations for ICCAT	June 2000	Neilson to prepare agenda
Maritimes RAP	R. O'Boyle	All LPA Review	July 2000	Lawton & O'Boyle to develop remit
Canada/USA Workshop		GOM Lobster science	October 2000	Lawton & US colleagues to develop agenda
TRAC	R. O'Boyle	GOM Lobster	November 2001	O'Boyle & Steve Clark to develop remit

Appendix 2. Review of items from National RAP Coordinators' Cte Meetings relevant to Maritimes Region

From 1996-1997

1. ***Regional Directors to approve terms of reference for regional processes. Action: Regional Coordinators.***
   This has been done in the Maritimes Region. The "Maritimes RAP Description" is widely available on the intranet site, has been distributed to staff via line management, and will soon be on the internet site.

5. ***Regional coordinators will acquire candidate images from Regional sources, which must be copyright free (or have blanket permission by the copyright holder) and usable by anyone. Action: Regional Coordinators.***
   Maritimes Region provided this list with all its caveats on August 14, 1998.

7. Regional coordinators will tell CSAS what maps are needed. CSAS will work with national GIS experts to get necessary files made accessible. Action: Regional Coordinators and CSAS.
   Awaiting action dependent on availability of national GIS experts.

9. A) RAP coordinators have accountability for ensuring editorial content of SSRs is high before the documents ever leave the Region. Action: Regional Coordinators.

In the Maritimes Region, a RAP Editorial Board process has been set up to address this.

9. B) Drafts of all SSRs are to be sent to the Assistant Coordinator, CSAS, who will either have a look at the language personally, or coordinate a reading by an appropriate officer in Headquarters. Feedback to the Regional RAP coordinator is to address only clarity and editorial content, and to be provided quickly (target turn-around of two working days). Action: Regional Coordinators and J. Hamel.

For the Maritimes Region, the Assistant Coordinator participated in the Editorial Boards until April 1999 at which time workload commitments disallowed the participation. It is proposed that draft SSRs continue to be sent to the CSAS Assistant Coordinator for participation as time allows, but also be sent to the Senior Advisor for the relevant subject area for input if they wish to comment. It is noted that the proposal of feedback within two working days is not practical in this region, sometimes there is not two days between the availability of the SSR and the Ed. Board. Any input on draft SSRs is requested during the Editorial Board meeting, or in writing, prior to the Editorial Board.

10. A) CSAS will select a few sample SSRs and editorial comments, and circulate these to Regional RAP coordinators, who may add additional comments. The Regional coordinators are to provide full editorial feedback to staff on a sample of these SSRs illustrating how they can be improved. Action: J. Rice and Regional Coordinators.
    In the Maritimes Region, awaiting CSAS guidance.

10 B) FRCC should provide Regional coordinators with feedback on SSRs and process. Action: J. Rice to coordinate
In the Maritime Region, FRCC members have been routine attendees of RAP meetings and have provided feedback on SSRs and process on an on-going basis.

12. CSAS is to organize a method to conduct an annual review of the quality of SSRs, including a postmortem on the quality of SSRs produced to date. (Oct. 97) Action: CSAS.
    In the Maritimes Region, awaiting CSAS guidance.

15. CSAS will make the most useful format a part of the consultation with clients on the quality and clarity of SSRs. The deadline of the full review is the end of this calendar year. RAP Coordinators

to forward names of the Communications staff for consultation. (Oct. 97). Action: Regional Coordinators.
In the Maritimes Region, awaiting CSAS guidance.

17. In invitations to non-DFO staff to participate in RAPs, it should be made clear that if one tables a Working Paper, one may be asked to revise it afterwards, and the revisions are mandatory. (It was noted that there is no leverage to get the documents produced if asked for). Action: Regional Coordinators.
In the Maritimes Region, this issue has arisen and is being dealt with through direct interaction with the external author.

19. Need to have authors respect deadlines and publish in a timely manner. Regions to notify CSAS of regional deadlines for Res. Docs after RAP. List of Res. Docs to be sent to CSAS after each meeting. DG FOS will be informed of who is delinquent and will discuss matter with RDS. Action; Regional Coordinators
In the Maritimes Region, Divisional Managers have been provided with updates on status of research documents. Follow-up action has been left with line managers as part of appraisal process.

21. CSAS will prepare a Guide to chairs on what should be in the proceedings series. Action: CSAS.
The Maritimes Region, developed their own guidelines which are available on the intranet site, and have been distributed to line management. Guidelines for Rapporteurs have also been developed and made available.

23. Need resources for SSSC, NMMC and FOC—J. Rice to discuss with A/ADM Science. Action: J. Rice.
This issue has been raised at regional line management meetings.

12. This group [RAP coordinators & CSAS] will report annually to the NSDC, and provide feedback to it on what has been achieved by RAP, as well as what is needed to be done. (Oct. 97) Still a priority—J. Rice to talk with the Director Fisheries Research Branch. Action: J. Rice.
No action required in Maritimes.

From 1998

1. Precautionary approach. The A/ADM Science has made a commitment to talk to the ADM Fisheries Management to mandate a person or committee to proceed with inter-sector initiatives. The CSAS Coordinator to raise this with the A/ADM Science. Action: J. Rice.
No action required in Maritimes. However, as part of FMSWG, multi-sector discussions have been conducted on the PA and its implications for the region.

2. The group noted the increasing demand for science participation in FRCC discussions was breaking our timetables and budgets. The CSAS coordinator will also take this concern to the A/ADM. Action: J. Rice.
No action required in Maritimes.

3. All Regional coordinators are to remind staff of the change in Atlantic groundfish schedule. Action: Regional Coordinators.
In the Maritimes Region, RAP Coordinator has been working closely with scientists and managers on the new schedule. This is facilitated through the multi-sector RAP Coordination Committee.

4. The CSAS Coordinator reported that in response to inquiries to the DFO UCS coordinator, it was confirmed that there are no precedents for process coordinators. The Regional and National

Coordinators agreed to exchange drafts as we progress with them. Action: Regional Coordinators and National Coordinator.
Exchanges of JDs were conducted among Maritimes Region, Pacific Region and CSAS.

5. FOC - Maritime Region has gone ahead with forage species issues. The Coordinator of Maritime Region will e-mail other coordinators and CSAS on actions taken on this topic. Action: B. O'Boyle.

This was not a RAP driven initiative in the Maritimes Region. As well, the workshop was extended to cover ecosystem approaches. The workshop was held in Truro during 31 August – 2 September 1999. Information on the workshop was provided to CSAS.

6. The CSAS Coordinator will discuss the status of national approaches on forage species issues with the Director of FRB and seek clarification if there is to be a nationally coordinated initiative. Action: J. Rice.
Maritimes representative on national working group was provided.

7. SSSC - The coordinators agreed that they would canvass staff for issues and try to put together a list of possible agenda items. Action: Regional Coordinators.

Issues included in 1999 regional RAP report are still valid.

8. FRCC and PFRCC: the Coordinators felt strongly that there is a need for official feedback from them regarding their degree of satisfaction with the products produced by RAP and ZAPs. The coordinators agreed that at our next annual meeting we would invite FRCC/PFRCC to take an hour at our meeting to discuss their interests. With further discussion, it was agreed that should be a general practice, that as we rotate our meetings geographically, we invite corresponding regional Advisory Council to talk to us about their objectives and expectations from the peer review processes. Action: CSAS.

Awaiting CSAS guidance.

9. The RAP coordinators saw themselves as forming an important linkage between high priority project work across several regions and implementation in subsequent assessments. The group identified two critical needs both of which could be addressed effectively within RAP processes:
   - Need to review implications of results of HPPs for assessments late in project, with HPP and assessment staff.
   - Need for a structure to ensure consistent implementation afterwards across regions. In general, zonal assessments in the next cycle after final meeting of a HPP would yield many benefits with regards to implementation

   Action: National RAP Coordinators' Committee.
   Awaiting CSAS guidance.

10. The coordinators agreed that the CSAS Assistant Coordinator would:
    - provide draft Guidelines for Publications to all Regional coordinators
    - put a copy of the Guidelines on the Intranet for general access by DFO assessment staff. Action: Assistant Coordinator.

Done and guidelines circulated to regional staff.

11. All coordinators are to discuss with clients if they feel we need to have the same product for all clients and what product would best meet their needs. Within these discussions the choices are – Combined Overview - Annex - Stand-alone Supplement. Action: Regional Coordinators.
    Upon discussion with FRCC, the stand-alone Update SSR was adopted, as per CSAS guidelines.

12. Regional coordinators agreed to poll staff to determine how many people could provide the full document Research Documents in electronic format. Action: Regional Coordinators.

Poll was conducted and received limited feedback. Will try again.

13. During the coming year the CSAS Coordinator will ask Department managers and the FRCC how they like SSR content. Regions are to talk to clients about this as well. Action: J. Rice.
See 11 above.

14. The CSAS office will update the SSR templates. Action: J. Hamel.
Templates used in Maritimes Region.

15. RAP Schedules are to be added to the web site. Action: J. Hamel.
Maritimes Region is launching own website, which will have the schedule linked to the CSAS site.

16. It was agreed that the CSAS Coordinator would discuss with the A/ADM - Science the acceptability of allowing RAP stand for the Regional Advisory Process. Action: J. Rice.
No action required in Maritimes.

Appendix 3. RAP Intranet statistics from December 1998 to September 30th, 1999
Compiled by Dianne Geddes (4 October 1999)

The intranet statistics have been compiled for the period above. Please note that "outside hosts" in this case, constitutes users from other regions.

December 1998

There have been a total of 453 accesses by 59 unique hosts viewing an average of 7.7 pages related to RAP. Of these, 439 (96.9%) have been from Department of Fisheries and Oceans, and 14 (3.09%) have been from outside hosts.
There have been a total of 1245 hits and 6 errors related to RAP, accounting for 4.6% of total server hits and consisting of 94420 kilobytes of information.

January 1999

There have been a total of 813 accesses by 84 unique hosts viewing an average of 9.7 pages related to RAP. Of these, 807 (99.3%) have been from Department of Fisheries and Oceans, and 6 (0.738%) have been from outside hosts.
There have been a total of 1976 hits and 20 errors related to RAP, accounting for 4.42% of total server hits and consisting of 148862 kilobytes of information.

February 1999

There have been a total of 761 accesses by 74 unique hosts viewing an average of 10.3 pages related to RAP. Of these, 757 (99.5%) have been from Department of Fisheries and Oceans, and 4 (0.526%) have been from outside hosts.
There have been a total of 2307 hits and 12 errors related to RAP, accounting for 5.96% of total server hits and consisting of 82755 kilobytes of information.

March 1999

There have been a total of 995 accesses by 68 unique hosts viewing an average of 14.6 pages related to RAP. Of these, 994 (99.9%) have been from Department of Fisheries and Oceans, and 1 (0.101%) have been from outside hosts.
There have been a total of 2755 hits and 16 errors related to RAP, accounting for 6.74% of total server hits and consisting of 173748 kilobytes of information.

April 1999

There have been a total of 1586 accesses by 64 unique hosts viewing an average of 24.8 pages related to RAP. Of these, 1557 (98.2%) have been from Department of Fisheries and Oceans, and 29 (1.83%) have been from outside hosts.
There have been a total of 2922 hits and 23 errors related to RAP, accounting for 9.42% of total server hits and consisting of 765983 kilobytes of information.

May 1999

There have been a total of 494 accesses by 68 unique hosts viewing an average of 7.3 pages related to RAP. Of these, 471 (95.3%) have been from Department of Fisheries and Oceans, and 23 (4.66%) have been from outside hosts.
There have been a total of 1574 hits and 10 errors related to RAP, accounting for 6.35% of total server hits and consisting of 74024 kilobytes of information.

June 1999

There have been a total of 437 accesses by 57 unique hosts viewing an average of 7.7 pages related to RAP. Of these, 387 (88.6%) have been from Department of Fisheries and Oceans, and 50 (11.4%) have been from outside hosts.
There have been a total of 1424 hits and 13 errors related to RAP, accounting for 5.87% of total server hits and consisting of 63948 kilobytes of information.

July 1999

There have been a total of 481 accesses by 46 unique hosts viewing an average of 10.5 pages related to RAP. Of these, 479 (99.6%) have been from Department of Fisheries and Oceans, and 2 (0.416%) have been from outside hosts.
There have been a total of 1481 hits and 82 errors related to RAP, accounting for 4.82% of total server hits and consisting of 22465 kilobytes of information.

August 1999

There have been a total of 489 accesses by 72 unique hosts viewing an average of 6.8 pages related to RAP. Of these, 488 (99.8%) have been from Department of Fisheries and Oceans, and 1 (0.204%) have been from outside hosts.
There have been a total of 1378 hits and 21 errors related to RAP, accounting for 4.25% of total server hits and consisting of 78407 kilobytes of information.

September 1999 (to Sept 28th)

There have been a total of 631 accesses by 90 unique hosts viewing an average of 7.0 pages related to RAP. Of these, 602 (95.4%) have been from Department of Fisheries and Oceans, and 29 (4.6%) have been from outside hosts.
There have been a total of 1944 hits and 64 errors related to RAP, accounting for 5.29% of total server hits and consisting of 75942 kilobytes of information.

Appendix 4

Workshop to develop the Canadian Living Marine Resources (LMR) module of the Global Ocean Observing System (GOOS)

Background:

In January 1999, DFO scientists from across the country met in Ottawa to draft plans for a Canadian contribution to the ocean component of GOOS. Led by members of the Ad Hoc DFO Committee on the GOOS Climate Module, the goals for the workshop were to outline present monitoring activities, identify information gaps, and begin the process of defining a program (or programs) to address both international and Canadian needs for climate observation. Although the priority task of this workshop was to develop the ocean contribution to the Climate Module of GOOS, considerable discussion was also given to the other three non-climate Modules of GOOS, namely the Health of the Oceans (HOTO) Module, the Coastal Module and the Living Marine Resources (LMR) Module.

In the context of international planning, LMR has lagged behind development of the other Modules considerably and is still largely at the conceptual stage. The goal of LMR-GOOS is to:

provide operationally useful information on changes in the state of living marine resources and ecosystems, i.e. observational services and forecast to those concerned with the harvest, conservation and scientific investigation of living marine resources of the deep ocean and shelf seas.

In order to fulfill this goal, a comprehensive ecosystem and environmental observational program is required which identifies variables and parameters of importance for detection of changes in structure, behaviour and biodiversity, including the status of fishery resources.

The development of a Canadian Living Marine Resources monitoring program should take into account the objectives of the new Canada Oceans Act and addressed the following questions: (1) What are the Canadian needs, i.e. what observational programs are required to characterize the varying states of our ecosystems and enable prediction of their future states? (2) What are we currently monitoring and do elements of those programs address the goals and objectives of LMR? (3) Do current monitoring programs meet Canadian needs or do they require enhancement? (4) Are any of the current or enhanced monitoring activities relevant to the global LMR effort? The report generated from the January workshop managed to address these questions only partially - the current state of LMR-relevant monitoring activities was assessed by region, provisional enhancements to existing activities were identified and critical information gaps were listed. However, what is lacking are (1) a clear statement of Canada's *ecosystem objectives* for integrated oceans management and conservation and (2) the *performance measures* by which the observational tools we employ to monitor the ocean ecosystem can be assessed. The monitoring program must provide *data products* of relevance to these performance measures for the ecosystem objectives.

In addition to meeting national needs, Canada is in a position to take a significant leadership role in the development of the international LMR program.

It is felt, therefore, that a follow-on, more narrowly focussed workshop is required to establish the foundation for a Living Marine Resources observational program that builds on the initial work done at the January workshop but more clearly links the monitoring program to conservation objectives of integrated oceans management.

LMR Workshop:

Why?

- To develop a national template which will link monitoring products with ecosystem objectives for integrated oceans management.

- The outcome of this workshop will be a monitoring "tool-kit" which defines possible ecosystem objectives (e.g. the features we want to preserve) and performance measures.
- It puts Canada in an international leadership role in the development of principles underlying LMR-GOOS.

Who?

- A relatively small group, including members of the Ad Hoc DFO committee on GOOS, other government (including Oceans Sector reps) and Canadian university experts; this will be a carefully selected group who have the interest and willingness to help do the work!

Where?

- BIO (Mike Sinclair, Canadian member on the international GOOS-LMR team and Maritimes RDS, will host the workshop).

When?

- January 17-19, 2000

What?

- Background materials, clearly defined objectives of the meeting and a series of specific questions to be addressed will be circulated well in advance to optimize workshop time and insure we get a useful and timely document from the exercise.

April 3, 1998

Ad Hoc DFO Committee on the GOOS Climate Module

Rationale

Several climate monitoring and data management initiatives are underway which would benefit from an informed assessment of Canadian requirements and possible contributions. These include: Canadian commitments to international ocean climate observing programs, data monitoring and management initiatives of the Canadian Climate Program Board, and climate data issues of concern to the 4NR departments as raised at the Science Forum on Climate Change and Variability. (Note that the other GOOS modules are: Health of the Ocean, Coastal Zone, Marine Services, and Living Marine Resources.)

Terms of Reference

1. Document present measurement and coordination programs that are relevant to the GOOS Climate module. That is, define present Canadian contributions to the GOOS Climate module, both (i) observations, and (ii) program management/ coordination.

2. Assess adequacy of Canadian ocean climate measurement and data management programs to meet (i) national requirements, and (ii) contributions to the GOOS Climate module.

3. Cost and priorize future needs, including those that can be met through normal program evolution (e.g. incremental funding may not be needed to satisfy many future needs).

4. Assess the long-term need for continuing the "Ad Hoc DFO Committee on the GOOS Climate Module".

Membership

Chair and Secretariat: FOSD (Savi Narayanan and Cindy De Cuypere)

Members: One, or more, from each discipline of physical, chemical and biological oceanography.

Reporting

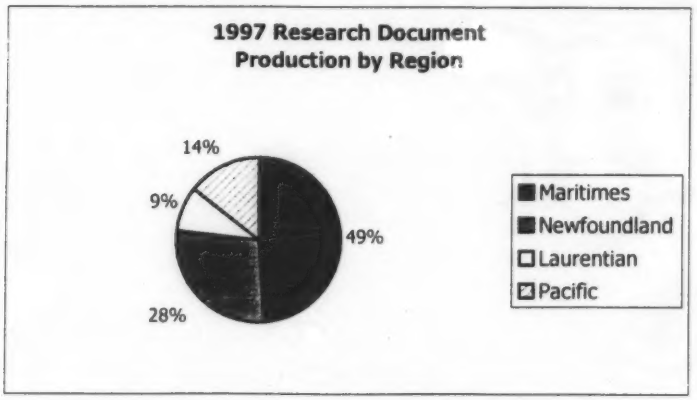
Two year mandate. Reports to the parent DFO Climate Science Coordinating Committee every six months, or more urgently if required.

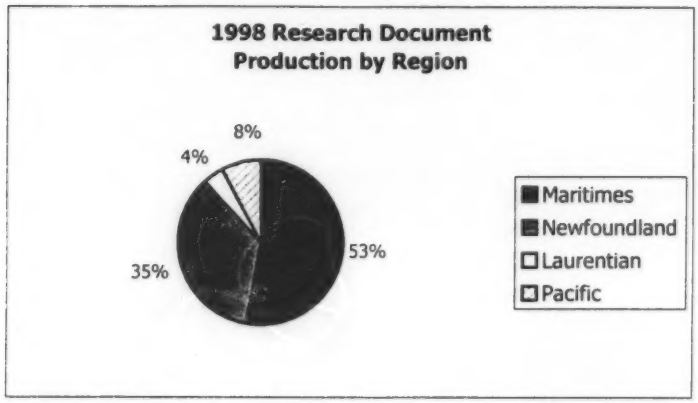
NOTE: This committee is also taking the lead in developing plans for the Canadian contribution to the other GOOS modules, specifically Health of the Ocean (HOTO) and Living Marine Resources (LMR).

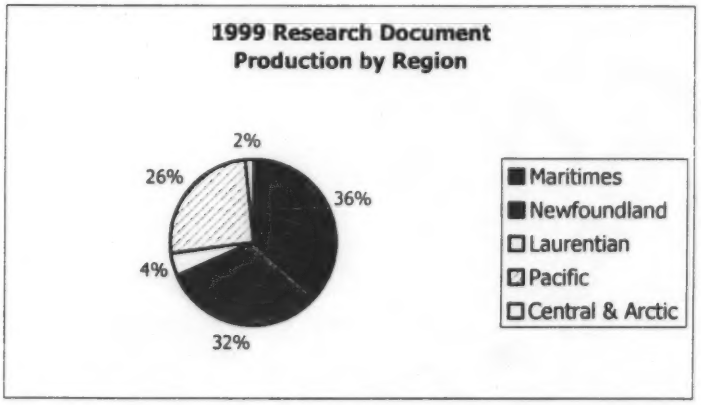
Annex 5. CSAS Research Document Production by Region.

Research Document Production by Region

	1997		1998		1999	
Maritimes	71	49%	88	53%	68	36%
Newfoundland	40	28%	59	35%	60	32%
Laurentian	13	9%	7	4%	8	4%
Pacific	21	14%	13	8%	48	26%
Central & Arctic					3	2%
Total	145	100%	167	100%	187	100%





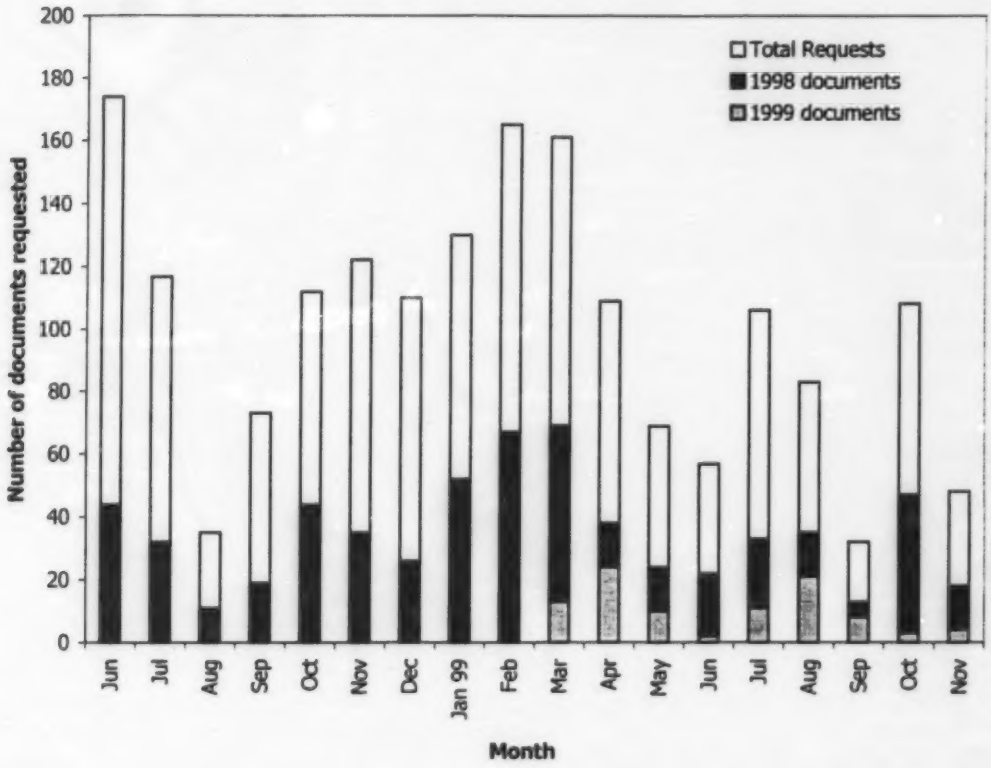


Annex 6. CSAS Research Document Production by Topic.

Topic	1999 No.	1999 %	1999 %Total	1998 No.	1998 %	1998 %Total	1997 No.	1997 %	1997 %Total
environment / oceanography	10	5.3	5.3	10	6.0	6.0	12	8.3	8.3
invertebrates / plants	33		17.6	28		16.8	35		24.1
abalone				1	0.6		1	0.7	
barnacle	1	0.5							
clam	1	0.5		2	1.2		3	2.1	
crab	7	3.7		7	4.2		10	6.9	
lobster	2	1.1		2	1.2		5	3.4	
mussels	2	1.1							
octopus				1	0.6				
oyster	1	0.5							
plankton	1	0.5		2	1.2		2	1.4	
prawn	1	0.5							
quahaug				1	0.6				
rockweed							1	0.7	
scallop	10	5.3		9	5.4		9	6.2	
sea cucumber	1	0.5							
shrimp	4	2.1		3	1.8		2	1.4	
squid							2	1.4	
urchin	2	1.1							
groundfish	55		29.4	53		31.7	37		25.5
cod	26	13.9		29	17.4		10	6.9	
cod / haddock							1	0.7	
flatfish	3	1.6					1	0.7	
flounder	3	1.6		1	0.6		4	2.8	
groundfish	3	1.6		3	1.8		4	2.8	
haddock	2	1.1		3	1.8		3	2.1	
hake	2	1.1		5	3.0		1	0.7	
Atlantic Halibut	1	0.5					1	0.7	
Greenland Halibut	1	0.5		1	0.6				
Pacific Halibut	1	0.5							
lingcod							1	0.7	
plaice	2	1.1		1	0.6				
pollock	1	0.5		1	0.6		1	0.7	
redfish	4	2.1		3	1.8		4	2.8	
rockfish	4	2.1					5	3.4	
sablefish	1	0.5					1	0.7	
skate				3	1.8				
witch	1	0.5		3	1.8				
freshwater	2		1.1			0			0
trout	2	1.1							
pelagics	26		13.9	11		6.6	18		12.4
capelin	2	1.1		1	0.6		5	3.4	
eulachon	3	1.6							
herring (Atlantic)	10	5.3		8	4.8		3	2.1	
herring (Pacific)	8	4.3					6	4.1	
mackerel				1	0.6		3	2.1	
pelagics	2	1.1							
sand lance							1	0.7	
shark	1	0.5		1	0.6				
diadromous	52		27.8	61		36.5	37		25.5
charr	2	1.1							
charr / salmon				1	0.6		1	0.7	
gaspereau							2	1.4	
salmon (Atlantic)	28	15.0		52	31.1		30	20.7	
salmon (Pacific)	14	7.5		7	4.2		2	1.4	
striped bass	8	4.3		1	0.6		1	0.7	
unspecified							1	0.7	
marine mammals	6		3.2			0.0	1		0.7
porpoises									
seals	4	2.1					1	0.7	
whales	2	1.1							
analyses / models / other	3		1.6	4		2.4	5		3.4
other							2	1.4	
management	1	0.5		1	0.6		1	0.7	
mapping				1	0.6				
sentinel				1	0.6		2	1.4	
SPA				1	0.6				
surveys	2	1.1							
TOTAL	187		100	167		100	145		100

Annex 7. CSAS Research Document Reprint Requests.

Monthly Research Document reprint requests in 1998 (01 Jun-31 Dec) and in 1999 (01 Jan-30 Nov)



The first documents of the 1999 series were produced in March.

1999 is the first year all documents produced were made available on-line and could be downloaded from the CSAS Internet site.